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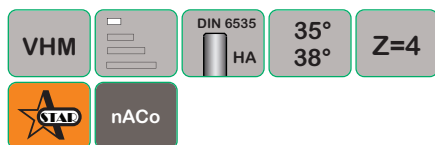
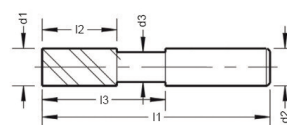
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VHM HPC Star Fräser, ungleiche Teilung, abgesetzt

Solid carbide HPC Star end mill, unequal pitch, reduced



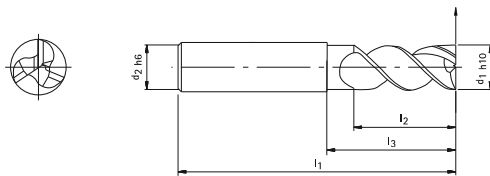
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18,00	24,00	50,00	84,00	17,00	18,00	F40156-1824050	F40157-1824050
18,00	32,00	50,00	92,00	17,00	18,00	F40156-1832050	F40157-1832050
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25,00	32,00	55,00	92,00	24,00	25,00	F40156-2532055	F40157-2532055
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HPC Star Schaftfräser für die Zerspanung von Aluminium

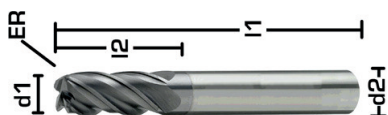
Solid carbide HPC Star mill for aluminium



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8,00	8,0	63	21	25	0.16	F40200-08021
10,00	10,0	72	22	30	0,20	F40200-10022
12,00	12,0	83	26	36	0.24	F40200-12026
16,00	16,0	92	36	42	0.32	F40200-16036
20,00	20,0	104	41	52	0,40	F40200-20041

VHM HPC Star Fräser mit Eckenradius

Solid carbide HPC Star end mill with corner radius

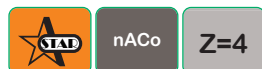
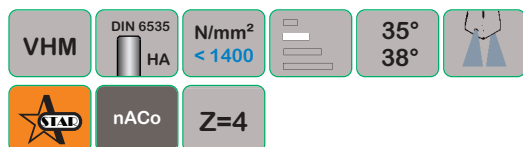


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4,00	1,00	11	57	6,0	F40163-0400100
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VHM HPC Star Fräser mit IK

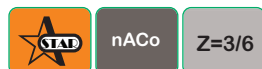
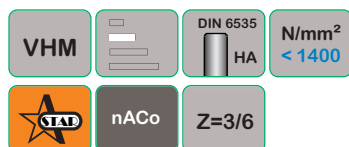
Solid carbide HPC Star end mill with IC



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8,00	40,00	50,00	100,00	7,50	8,00	F40165-0800040
10,00	22,00	32,00	72,00	9,50	10,00	F40165-1000022
10,00	40,00	50,00	100,00	9,50	10,00	F40165-1000040
12,00	26,00	40,00	83,00	11,00	12,00	F40165-1200026
12,00	40,00	50,00	100,00	11,00	12,00	F40165-1200040
14,00	26,00	40,00	83,00	13,00	14,00	F40165-1400026
14,00	40,00	50,00	100,00	13,00	14,00	F40165-1400040
16,00	32,00	45,00	92,00	15,00	16,00	F40165-1600032
16,00	40,00	50,00	100,00	15,00	16,00	F40165-1600040
18,00	32,00	45,00	93,00	17,00	18,00	F40165-1800032
18,00	45,00	60,00	102,00	17,00	18,00	F40165-1800045
20,00	35,00	55,00	93,20	19,00	20,00	F40165-2000035
20,00	38,00	55,00	104,00	19,00	20,00	F40165-2000038
20,00	75,00	90,00	150,00	19,00	20,00	F40165-2000075
25,00	60,00	70,00	122,00	24,00	25,00	F40165-2500060

VHM HPC Star Schlichtfräser

Solid carbide HPC Star finishing end mill



D1	L2	L3	L1	D3	D2 h6	Z	CODE
6,00	13	21	57	5,50	6	3 / 6	F40167-0600013
8,00	19	30	63	7,50	8	3 / 6	F40167-0800019
10,00	22	32	72	9,50	10	3 / 6	F40167-1000022
12,00	26	40	83	11,50	12	3 / 6	F40167-1200026
16,00	32	45	92	15,00	16	3 / 6	F40167-1600032
20,00	38	55	104	19,00	20	3 / 6	F40167-2000038
25,00	42	65	110	24,00	25	3 / 6	F40167-2500042

VHM HPC Star Schruppfräser

Solid carbide HPC Star roughing end mill



<div> <div>VHM</div> <div></div> <div></div> <div></div> <div>nACo</div> <div>Z=4</div> </div>						
D1	L2	L3	L1	D3	D2 h6	CODE
4,00	11	21	57	5,50	6,0	F40166-0400011
5,00	13	21	57	5,50	6,0	F40166-0500013
6,00	13	21	57	5,50	6,0	F40166-0600013
6,00	18	29	65	5,50	6,0	F40166-0600018
6,00	13	40	80	5,50	6,0	F40166-0604013
8,00	16	27	63	7,50	8,0	F40166-0800016
8,00	24	39	75	7,50	8,0	F40166-0800024
8,00	19	50	100	7,50	8,0	F40166-0800019
10,00	22	32	72	9,50	10,0	F40166-1000022
10,00	30	40	80	9,20	10,0	F40166-1000030
10,00	22	50	100	9,20	10,0	F40166-1005022
12,00	26	38	83	11,50	12,0	F40166-1200026
12,00	26	80	150	11,20	12,0	F40166-1208026
12,00	36	48	93	11,20	12,0	F40166-1200036
14,00	26	38	83	13,20	14,0	F40166-1400026
16,00	32	44	92	15,00	16,0	F40166-1600032
16,00	48	60	110	15,00	16,0	F40166-1600048
16,00	32	80	150	15,00	16,0	F40166-1608032
20,00	60	86	126	19,00	20,0	F40166-2000060
20,00	38	55	104	19,00	20,0	F40166-2000038
20,00	38	80	150	19,00	20,0	F40166-2008038
25,00	45	65	121	24,00	25,0	F40166-2500045

VHM HPC Star Fräser Superfinish

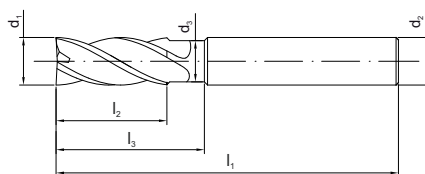
Solid carbide HPC Star superfinish end mill



<div> <div>VHM</div> <div></div> <div></div> <div>Universal TOOL</div> <div></div> <div>nACo</div> <div>Z=6</div> </div>						
D1	L2	L3	L1	D3	D2 h6	CODE
8,00	19	27	63	7,50	8	F40170-0800019
10,00	22	32	72	9,50	10	F40170-1000022
12,00	26	40	83	11,00	12	F40170-1200026
16,00	32	45	92	15,00	16	F40170-1600032
20,00	38	55	104	19,00	20	F40170-2000038
25,00	42	65	110	24,00	25	F40170-2500042



VHM HPC Star Fräser, ungleiche Teilung, abgesetzt Solid carbide HPC Star end mill, unequal pitch, reduced



VHM Z=5 35°
38°

STAR TiALN



DIN 6535
HA

DIN 6535
HA

d1	d2	d3	l1	l2	l3	Z	R	CODE	CODE
6,0	6,0	5,5	63	13	18	5	0,5	F40212-0613	F40213-0613/0,5
6,0	6,0	5,5	63	13	18	5	1,0	–	F40213-0613/1,0
8,0	8,0	7,5	68	19	24	5	0,5	F40212-0819	F40213-0819/0,5
8,0	8,0	7,5	68	19	24	5	1,0	–	F40213-0819/1,0
10,0	10,0	9,2	76	22	30	5	0,5	F40212-1022	F40213-1022/0,5
10,0	10,0	9,2	76	22	30	5	1,0	–	F40213-1022/1,0
12,0	12,0	11,0	84	26	36	5	0,5	F40212-1226	F40213-1226/0,5
12,0	12,0	11,0	84	26	36	5	1,0	–	F40213-1226/1,0
14,0	14,0	13,0	84	26	36	5	1,0	F40212-1426	F40213-1426/1,0
16,0	16,0	15,0	100	32	48	5	1,0	F40212-1632	F40213-1632/1,0
16,0	16,0	15,0	100	32	48	5	2,0	–	F40213-1632/2,0
18,0	18,0	17,0	100	32	48	5	1,0	F40212-1832	F40213-1832/1,0
20,0	20,0	19,0	115	38	60	5	1,0	F40212-2038	F40213-2038/1,0
20,0	20,0	19,0	115	38	60	5	2,0	–	F40213-2038/2,0
20,0	20,0	19,0	115	38	60	5	3,0	–	F40213-2038/3,0
20,0	20,0	19,0	115	38	60	5	4,0	–	F40213-2038/4,0

Einsatzrichtwerte – VHM Fräser
Estimated values – Solid carbide end mill



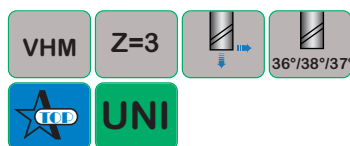
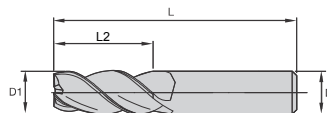
Werkstoff		Festigkeit (N/mm ²) Härte	UNIVERSALFRÄSER					HSC-FRÄSEN					Kühlung E= Emulsion, Ö= Schneidöl, T= Trocken, L= Luft			
			Schnittgeschwindigkeit		Mittelwert Vorschub fz (mm/Zahn) Fräser-Ø in mm					Schnittge- schwindig- keit Vc m/min	Mittelwert Vorschub fz (mm/Zahn) Fräser-Ø in mm					
			ohne Beschichtung	mit Beschichtung	Ø 2 bis 4	Ø 5 bis 8	Ø 9 bis 12	Ø 13 bis 16	Ø 17 bis 20		Ø 2 bis 4	Ø 5 bis 8		Ø 9 bis 12	Ø 13 bis 16	Ø 17 bis 20
Stähle	Baustähle, Vergütungsstahl, Einsatzstahl, Automatenstahl, Nitrierstahl	bis 700	60-120	100-300	0.03	0.04	0.05	0.06	0.07	550-600	0.03	0.1	0.12	0.15	0.18	E / Ö
		über 700	50-80	50-140	0.015	0.03	0.04	0.05	0.06	300-400	0.02	0.07	0.1	0.12	0.15	E / Ö
	Werkzeugstähle	bis 1400	50-90	60-120	0.015	0.02	0.03	0.05	0.06	250-300	0.02	0.05	0.08	0.1	0.12	E / Ö
		über 1400	40-70	50-100	0.015	0.02	0.03	0.05	0.06	200-250	0.015	0.04	0.07	0.08	0.1	E / Ö
Eisen- werkstoffe	Hochlegierte Stähle		nicht empfohlen	70-100	0.01	0.02	0.03	0.04	0.05	200-250	0.015	0.04	0.06	0.07	0.08	E / Ö
	Gehärtete Stähle	bis 55 HRC	nicht empfohlen	40-70	0.01	0.02	0.03	0.04	0.05	100-300	0.015	0.04	0.06	0.08	0.1	T / E Ö
		über 55 HRC	nicht empfohlen	30-50	0.01	0.015	0.025	0.03	0.035	80-180	0.004	0.02	0.035	0.05	0.06	T / E Ö
	Gusseisen, Hartguss, Temperguss	bis 200 HB über 200 HB	70-110 60-100	100-150 90-140	0.035 0.03	0.06 0.05	0.07 0.06	0.09 0.08	0.12 0.1	300-350 300-350	0.03 0.03	0.06 0.06	0.08 0.08	0.1 0.1	0.15 0.15	T / E
Nichteisen- werkstoffe	Stahlguss	bis 500 über 500	90-140 70-120	120-180 100-150	0.03 0.01	0.05 0.03	0.06 0.04	0.07 0.05	0.08 0.06	400-450 350-400	0.02 0.015	0.05 0.04	0.08 0.06	0.09 0.07	0.1 0.08	E
	Kupfer, Messing, Rotguss, Bronze		90-200	120-250	0.02	0.04	0.06	0.08	0.1	600-700	0.04	0.08	0.12	0.15	0.18	T / E
	Aluminiumlegierung		160-300	250-600	0.04	0.06	0.08	0.15	0.2	800-900	0.05	0.1	0.12	0.18	0.2	E
	Titan, Titanlegierung		20-60	30-70	0.01	0.025	0.03	0.04	0.05	70-120	0.03	0.05	0.07	0.08	0.1	E
Kunst- stoffe	Hochwarmf. Cr/ Ni-Leier.		30-50	40-60	0.01	0.025	0.03	0.04	0.04	50-70	0.01	0.025	0.03	0.06	0.08	E / Ö
	Graphit		160-260	150-900	0.01	0.02	0.03	0.045	0.06	800-900	0.06	0.12	0.15	0.18	0.2	T
	Thermoplaste		120-200	nicht empfohlen	0.04	0.08	0.12	0.2	0.25	700-800	0.05	0.1	0.12	0.15	0.18	T / L
	Duroplaste		100-200	nicht empfohlen	0.03	0.06	0.07	0.1	0.15	500-600	0.05	0.1	0.12	0.15	0.18	T / L
Faserverstärkte Kunststoffe			90-160	280-800	0.03	0.06	0.08	0.12	0.18	-	-	-	-	-	-	-



TOPSTAR = hohe Qualität und Leistung ohne Nachschliff
TOPSTAR = high quality and performance without regrinding

TOPSTAR – VHM Schaftfräser 36°/ 38°/ 37°

TOPSTAR – Solid carbide end mill 36°/ 38°/ 37°



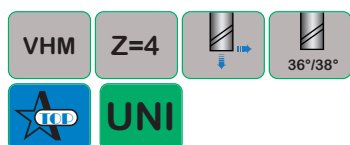
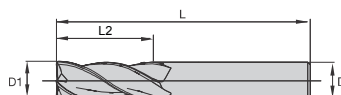
D1	D	L2	L	CODE	CODE	CODE	CODE
2,00	6,0	4,0	38	F40202-0200040	F40203-0200040	F40204-0200040	F40205-0200040
3,00	6,0	5,0	38	F40202-0300050	F40203-0300050	F40204-0300050	F40205-0300050
4,00	6,0	7,0	38	F40202-0400070	F40203-0400070	F40204-0400070	F40205-0400070
5,00	6,0	8,0	38	F40202-0500080	F40203-0500080	F40204-0500080	F40205-0500080
6,00	6,0	8,0	38	F40202-0600080	F40203-0600080	F40204-0600080	F40205-0600080
8,00	8,0	11,0	43	F40202-0800110	F40203-0800110	F40204-0800110	F40205-0800110
10,00	10,0	13,0	50	F40202-1000130	F40203-1000130	F40204-1000130	F40205-1000130
12,00	12,0	15,0	55	F40202-1200150	F40203-1200150	F40204-1200150	F40205-1200150
16,00	16,0	22,0	75	F40202-1600220	F40203-1600220	F40204-1600220	F40205-1600220
20,00	20,0	22,0	75	F40202-2000220	F40203-2000220	F40204-2000220	F40205-2000220

	P				M		K		N		
	1	2	3	4	1	2	1	2	1	2	5
TiCN	●	●	●	●	●	●	●	●	●	●	●
TiAlN	●	●	●	●	●	●	●	●	●	●	●

Einsatzrichtwerte auf Seite 124 /
Estimated values page 124.

TOPSTAR – VHM HPC Schaftfräser 36°/ 38°

TOPSTAR – Solid carbide end mill 36°/ 38°

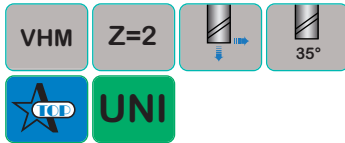
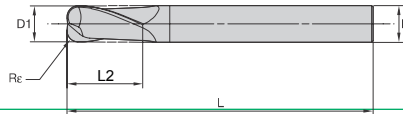


D1	D	L2	L	CODE	CODE
4,00	6,0	7,0	38	F40206-0400070	F40207-0400070
6,00	6,0	8,0	38	F40206-0600080	F40207-0600080
8,00	8,0	11,0	43	F40206-0800110	F40207-0800110
10,00	10,0	13,0	50	F40206-1000130	F40207-1000130
12,00	12,0	15,0	55	F40206-1200150	F40207-1200150
16,00	16,0	22,0	75	F40206-1600220	F40207-1600220
20,00	20,0	22,0	75	F40206-2000220	F40207-2000220

	P				M		K		
	1	2	3	4	1	2	1	2	3
AlTiN	●	●	●	●	●	●	●	●	●

Einsatzrichtwerte auf Seite 124 /
Estimated values page 124.

TOPSTAR – VHM Stirnradiusfräser 35°
TOPSTAR – Solid carbide radius milling cutters 35°

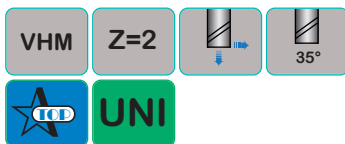
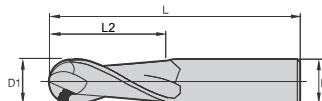


D1	D	L2	L	CODE	CODE
2,00	6,0	4,0	38	F40210-0200040	F40211-0200040
3,00	6,0	5,0	38	F40210-0300050	F40211-0300050
4,00	6,0	7,0	38	F40210-0400070	F40211-0400070
5,00	6,0	8,0	38	F40210-0500070	F40211-0500070
6,00	6,0	8,0	38	F40210-0600080	F40211-0600080
8,00	8,0	11,0	43	F40210-0800110	F40211-0800110
10,00	10,0	13,0	50	F40210-1000130	F40211-1000130
12,00	12,0	15,0	55	F40210-1200150	F40211-1200150
16,00	16,0	22,0	75	F40210-1600220	F40211-1600220
20,00	20,0	22,0	75	F40210-2000220	F40211-2000220

	P				M		K		N
	1	2	3	4	1	2	1	2	5
AITiN	●	●	●	●	●	●	●	●	●

Einsatzrichtwerte auf Seite 125 /
Estimated values page 125.

TOPSTAR – VHM Torusfräser 35°
TOPSTAR – Solid carbide torus cutter 35°



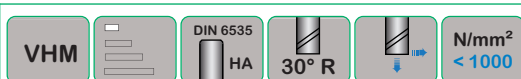
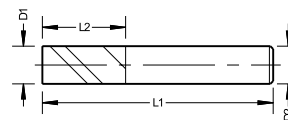
D1	D	L2	L	Re	CODE	CODE
2,00	6,0	4,0	38	0,50	F40208-0200040	F40209-0200040
3,00	6,0	5,0	38	0,50	F40208-0300050	F40209-0300050
4,00	6,0	7,0	38	0,50	F40208-0400070	F40209-0400070
5,00	6,0	8,0	38	0,50	F40208-0500080	F40209-0500080
6,00	6,0	8,0	38	1,00	F40208-0600080	F40209-0600080
8,00	8,0	11,0	43	2,00	F40208-0800110	F40209-0800110
10,00	10,0	13,0	50	3,00	F40208-1000130	F40209-1000130
12,00	12,0	15,0	55	3,00	F40208-1200150	F40209-1200150
16,00	16,0	22,0	75	3,00	F40208-1600220	F40209-1600220
20,00	20,0	22,0	75	3,00	F40208-2000220	F40209-2000220

	P				M		K		N
	1	2	3	4	1	2	1	2	5
AITiN	●	●	●	●	●	●	●	●	●

Einsatzrichtwerte auf Seite 125 /
Estimated values page 125.

VHM Bohrnutenfräser – kurz

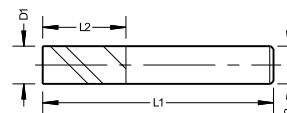
Solid carbide center cut end mill – short



D1	L1	L2	D2	CODE	CODE
0,30	38	1,5	3,0	F40001-00315	F40002-00315
0,50	38	2	3,0	F40001-00502	F40002-00502
0,60	38	2	3,0	F40001-00602	F40002-00602
0,80	38	3	3,0	F40001-00803	F40002-00803
1,00	38	3	3,0	F40001-01003	F40002-01003
1,20	38	3	3,0	F40001-01203	F40002-01203
1,50	38	6	3,0	F40001-01506	F40002-01506
2,00	38	8	2,0	F40001-0208	F40002-0208
2,50	38	8	2,5	F40001-02508	F40002-02508
2,80	38	8	3,0	F40001-02808	F40002-02808
3,00	38	12	3,0	F40001-0312	F40002-0312
3,50	50	12	3,5	F40001-03512	F40002-03512
3,80	50	12	4,0	F40001-03812	F40002-03812
4,00	50	12	4,0	F40001-0412	F40002-0412
4,50	50	12	4,5	F40001-04512	F40002-04512
4,80	50	12	5,0	F40001-04812	F40002-04812
5,00	50	14	5,0	F40001-0514	F40002-0514
5,50	50	14	5,5	F40001-05514	F40002-05514
5,75	50	14	6,0	F40001-057514	F40002-057514
6,00	50	14	6,0	F40001-0614	F40002-0614
6,50	60	16	6,5	F40001-06516	F40002-06516
6,75	60	16	7,0	F40001-067516	F40002-067516
7,00	60	18	7,0	F40001-0718	F40002-0718
7,75	60	18	8,0	F40001-077518	F40002-077518
8,00	60	18	8,0	F40001-0818	F40002-0818
8,70	60	18	9,0	F40001-08718	F40002-08718
9,00	60	18	9,0	F40001-0918	F40002-0918
9,70	70	20	10,0	F40001-09720	F40002-09720
10,00	70	20	10,0	F40001-1020	F40002-1020
11,00	70	20	11,0	F40001-1120	F40002-1120
11,70	70	20	12,0	F40001-11720	F40002-11720
12,00	70	20	12,0	F40001-1220	F40002-1220
13,00	70	20	13,0	F40001-1320	F40002-1320
14,00	75	25	14,0	F40001-1425	F40002-1425
15,00	75	22	15,0	F40001-1522	F40002-1522
15,70	75	22	16,0	F40001-15722	F40002-15722
16,00	75	22	16,0	F40001-1622	F40002-1622
17,70	100	32	18,0	F40001-17732	F40002-17732
18,00	100	32	18,0	F40001-1832	F40002-1832
19,70	100	30	20,0	F40001-19730	F40002-19730
20,00	100	30	20,0	F40001-2030	F40002-2030
22,00	104	32	22,0	F40001-2232	F40002-2232
25,00	104	32	25,0	F40001-2532	F40002-2532

VHM Bohrnutenfräser – kurz

Solid carbide center cut end mill – short

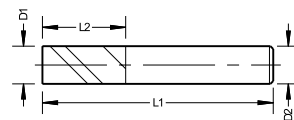


<div> <div>VHM</div> <div></div> <div></div> <div></div> </div>					
UNI		Z=2		BLANK	TiALN
D1	L1	L2	D2	CODE	CODE
2,00	50	3	6,0	F40003-0203	F40004-0203
2,50	50	3	6,0	F40003-02503	F40004-02503
2,80	50	4	6,0	F40003-02804	F40004-02804
3,00	50	4	6,0	F40003-0304	F40004-0304
3,50	50	4	6,0	F40003-03504	F40004-03504
3,80	54	5	6,0	F40003-03805	F40004-03805
4,00	54	5	6,0	F40003-0405	F40004-0405
4,80	54	6	6,0	F40003-04806	F40004-04806
5,00	54	6	6,0	F40003-0506	F40004-0506
5,75	54	7	6,0	F40003-057507	F40004-057507
6,00	54	7	6,0	F40003-0607	F40004-0607
6,75	58	8	8,0	F40003-067508	F40004-067508
7,00	58	8	8,0	F40003-0708	F40004-0708
8,00	58	9	8,0	F40003-0809	F40004-0809
9,00	66	10	10,0	F40003-0910	F40004-0910
10,00	66	11	10,0	F40003-1011	F40004-1011
11,70	73	12	12,0	F40003-11712	F40004-11712
12,00	73	12	12,0	F40003-1212	F40004-1212
13,70	75	14	14,0	F40003-13714	F40004-13714
14,00	75	14	14,0	F40003-1414	F40004-1414
15,70	82	16	16,0	F40003-15716	F40004-15716
16,00	82	16	16,0	F40003-1616	F40004-1616
18,00	82	18	18,0	F40003-1818	F40004-1818
20,00	92	20	20,0	F40003-2020	F40004-2020



VHM Bohrnutenfräser – lang

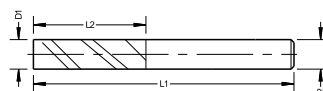
Solid carbide center cut end mill – long



<div> <div>VHM</div> <div></div> <div></div> <div></div> </div>					
<div> <div>UNI</div> <div>Z=2</div> </div>		<div>BLANK</div>		<div>TiALN</div>	
D1	L1	L2	D2	CODE	CODE
2,00	50	5	6,0	F40005-0205	F40006-0205
2,50	50	5	6,0	F40005-02505	F40006-02505
3,00	57	7	6,0	F40005-0307	F40006-0307
3,50	57	7	6,0	F40005-03507	F40006-03507
4,00	57	8	6,0	F40005-0408	F40006-0408
4,50	57	8	6,0	F40005-04508	F40006-04508
5,00	57	10	6,0	F40005-0510	F40006-0510
5,50	57	10	6,0	F40005-05510	F40006-05510
6,00	57	10	6,0	F40005-0610	F40006-0610
7,00	63	13	8,0	F40005-0713	F40006-0713
8,00	63	16	8,0	F40005-0816	F40006-0816
9,00	72	16	10,0	F40005-0916	F40006-0916
10,00	72	22	10,0	F40005-1022	F40006-1022
12,00	83	22	12,0	F40005-1222	F40006-1222
14,00	83	22	14,0	F40005-1422	F40006-1422
16,00	92	26	16,0	F40005-1626	F40006-1626
18,00	92	26	18,0	F40005-1826	F40006-1826
20,00	104	32	20,0	F40005-2032	F40006-2032

VHM Bohrnutenfräser – extra lang

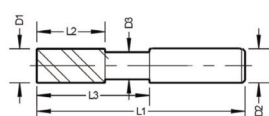
Solid carbide center cut end mill – extra long



<div> <div>VHM</div> <div></div> <div></div> <div></div> </div> <div> <div>UNI</div> <div>Z=2</div> </div> <div>BLANK</div> <div>TiALN</div>					
D1	L1	L2	D2	CODE	CODE
5,00	75	30	6,0	F40007-0530	F40008-0530
6,00	75	30	6,0	F40007-0630	F40008-0630
6,00	100	40	6,0	F40007-0640	F40008-0640
8,00	75	30	8,0	F40007-0830	F40008-0830
8,00	100	40	8,0	F40007-0840	F40008-0840
10,00	75	30	10,0	F40007-1030	F40008-1030
10,00	100	40	10,0	F40007-1040	F40008-1040
12,00	100	45	12,0	F40007-1245	F40008-1245
12,00	150	75	12,0	F40007-1275	F40008-1275
14,00	100	45	14,0	F40007-1445	F40008-1445
14,00	150	75	14,0	F40007-1475	F40008-1475
16,00	100	45	16,0	F40007-1645	F40008-1645
16,00	150	75	16,0	F40007-1675	F40008-1675
18,00	110	45	18,0	F40007-1845	F40008-1845
18,00	150	75	18,0	F40007-1875	F40008-1875
20,00	110	45	20,0	F40007-2045	F40008-2045
20,00	150	75	20,0	F40007-2075	F40008-2075
25,00	120	45	25,0	F40007-2545	F40008-2545
25,00	150	75	25,0	F40007-2575	F40008-2575

VHM Schaftfräser – lang

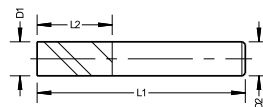
Solid carbide end mill - long



<div> <div>VHM</div> <div></div> <div></div> <div></div> </div> <div> <div>UNI</div> <div>nACo</div> <div>Z=2</div> </div>					
D1 h9	L1	L2	D2 h6	D3 x L3	CODE
3,00	58	10	6,0	2,8x14	F40120-0310
4,00	58	13	6,0	3,8x17	F40120-0413
5,00	58	15	6,0	4,8x19	F40120-0515
6,00	58	16	6,0	5,7x20	F40120-0616
8,00	64	22	8,0	7,7x26	F40120-0822
10,00	73	25	10,0	9,6x31	F40120-1025
12,00	84	26	12,0	11,6x37	F40120-1226
14,00	84	26	14,0	13,6x37	F40120-1426
16,00	93	30	16,0	15,6x43	F40120-1630
18,00	93	30	18,0	17,6x43	F40120-1830
20,00	104	40	20,0	19,6x52	F40120-2040

VHM Schaftfräser – kurz

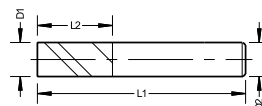
Solid carbide end mill – short



D1	L1	L2	D2	CODE	CODE
0,50	38	1,5	3,0	F40014-00515	F40015-00515
0,80	38	1,5	3,0	F40014-00815	F40015-00815
1,00	38	2	3,0	F40014-01002	F40015-01002
1,50	38	2	3,0	F40014-01502	F40015-01502
2,00	38	8	2,0	F40014-02008	F40015-02008
2,50	38	8	2,5	F40014-02508	F40015-02508
2,80	38	8	3,0	F40014-02808	F40015-02808
3,00	38	12	3,0	F40014-03012	F40015-03012
3,50	50	12	3,5	F40014-03512	F40015-03512
3,80	50	12	4,0	F40014-03812	F40015-03812
4,00	50	12	4,0	F40014-04012	F40015-04012
4,50	50	12	4,5	F40014-04512	F40015-04512
4,80	50	12	5,0	F40014-04812	F40015-04812
5,00	50	14	5,0	F40014-05014	F40015-05014
5,50	50	14	5,5	F40014-05514	F40015-05514
5,75	50	14	6,0	F40014-057514	F40015-057514
6,00	50	14	6,0	F40014-06014	F40015-06014
6,50	60	16	6,5	F40014-06516	F40015-06516
6,75	60	16	7,0	F40014-067516	F40015-067516
7,00	60	18	7,0	F40014-07018	F40015-07018
7,75	60	18	8,0	F40014-077518	F40015-077518
8,00	60	18	8,0	F40014-08018	F40015-08018
8,70	60	18	9,0	F40014-08718	F40015-08718
9,00	60	18	9,0	F40014-09018	F40015-09018
9,70	70	20	10,0	F40014-09720	F40015-09720
10,00	70	20	10,0	F40014-10020	F40015-10020
11,00	70	20	11,0	F40014-11020	F40015-11020
11,70	70	20	12,0	F40014-11720	F40015-11720
12,00	70	20	12,0	F40014-12020	F40015-12020
13,00	70	20	13,0	F40014-13020	F40015-13020
14,00	75	25	14,0	F40014-14025	F40015-14025
15,00	75	25	15,0	F40014-15022	F40015-15022
15,70	75	25	16,0	F40014-15722	F40015-15722
16,00	75	25	16,0	F40014-16022	F40015-16022
17,70	100	32	18,0	F40014-17732	F40015-17732
18,00	100	32	18,0	F40014-18032	F40015-18032
19,70	100	32	20,0	F40014-19730	F40015-19730
20,00	100	32	20,0	F40014-20030	F40015-20030
22,00	104	32	22,0	F40014-22032	F40015-22032
25,00	104	32	25,0	F40014-25032	F40015-25032

VHM Schafffräser – lang

Solid carbide end mill – long

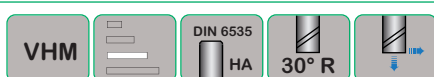
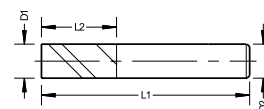


<div> <div>VHM</div> <div></div> <div></div> <div></div> </div>					
UNI		Z=3		BLANK	TiALN
D1	L1	L2	D2	CODE	CODE
2,00	50	5	6,0	F40016-0205	F40017-02005
2,50	50	5	6,0	F40016-02505	F40017-02505
3,00	57	7	6,0	F40016-0307	F40017-03007
3,50	57	7	6,0	F40016-03507	F40017-03507
4,00	57	8	6,0	F40016-0408	F40017-04008
4,50	57	8	6,0	F40016-04508	F40017-04508
5,00	57	10	6,0	F40016-0510	F40017-05010
5,50	57	10	6,0	F40016-05510	F40017-05510
6,00	57	10	6,0	F40016-0610	F40017-06010
7,00	63	13	8,0	F40016-0713	F40017-07013
8,00	63	16	8,0	F40016-0816	F40017-08016
9,00	72	16	10,0	F40016-0916	F40017-09016
10,00	72	22	10,0	F40016-1022	F40017-10022
12,00	83	22	12,0	F40016-1222	F40017-12022
14,00	83	22	14,0	F40016-1422	F40017-14022
16,00	92	26	16,0	F40016-1626	F40017-16026
18,00	92	26	18,0	F40016-1826	F40017-18026
20,00	104	32	20,0	F40016-2032	F40017-20032



VHM Schaftfräser – extra lang

Solid carbide end mill - extra long



UNI Z=3

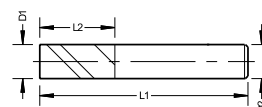
BLANK

TiALN

D1 h9	L1	L2	D2 h6	CODE	CODE
6,00	75	30	6,0	F40121-0630	F40122-0630
6,00	100	40	6,0	F40121-0640	F40122-0640
8,00	75	30	8,0	F40121-0830	F40122-0830
8,00	100	40	8,0	F40121-0840	F40122-0840
10,00	75	30	10,0	F40121-1030	F40122-1030
10,00	100	40	10,0	F40121-1040	F40122-1040
12,00	100	45	12,0	F40121-1245	F40122-1245
12,00	150	75	12,0	F40121-1275	F40122-1275
16,00	100	45	16,0	F40121-1645	F40122-1645
16,00	150	75	16,0	F40121-1675	F40122-1675
20,00	150	65	20,0	F40121-2065	F40122-2065
20,00	150	90	20,0	F40121-2090	F40122-2090

VHM Schaftfräser – lang

Solid carbide end mill - long



UNI Z=3

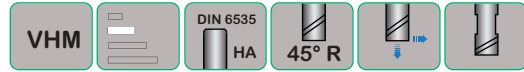
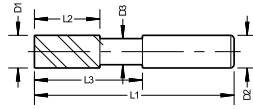
BLANK

TiALN

D1	L1	L2	D2	CODE	CODE
3,00	57	8	6,0	F40018-0308	F40019-0308
3,50	57	11	6,0	F40018-03511	F40019-03511
4,00	57	11	6,0	F40018-0411	F40019-0411
4,50	57	13	6,0	F40018-04513	F40019-04513
5,00	57	13	6,0	F40018-0513	F40019-0513
5,50	57	13	6,0	F40018-05513	F40019-05513
6,00	57	13	6,0	F40018-0613	F40019-0613
7,00	63	16	8,0	F40018-0716	F40019-0716
8,00	63	19	8,0	F40018-0819	F40019-0819
9,00	72	19	10,0	F40018-0919	F40019-0919
10,00	72	22	10,0	F40018-1022	F40019-1022
12,00	83	26	12,0	F40018-1226	F40019-1226
14,00	83	26	14,0	F40018-1426	F40019-1426
16,00	92	32	16,0	F40018-1632	F40019-1632
18,00	92	32	18,0	F40018-1832	F40019-1832
20,00	104	38	20,0	F40018-2038	F40019-2038

VHM Schafffräser – lang

Solid carbide end mill - long



UNI Z=3

BLANK

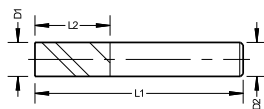
TiALN

D1	L1	L2	D2	D3 x L3	CODE	CODE
3,00	58	8	6,0	2,8x12	F40020-0308	F40021-0308
4,00	58	11	6,0	3,8x16	F40020-0411	F40021-0411
5,00	58	13	6,0	4,8x19	F40020-0513	F40021-0513
6,00	58	13	6,0	5,7x19	F40020-0613	F40021-0613
8,00	63	19	8,0	7,8 x 27	F40020-0819	F40021-0819
10,00	72	22	10,0	9,8 x 32	F40020-1022	F40021-1022
12,00	83	26	12,0	11,8 x 38	F40020-1226	F40021-1226
14,00	83	26	14,0	13,8 x 38	F40020-1426	F40021-1426
16,00	92	32	16,0	15,7 x 44	F40020-1632	F40021-1632
18,00	92	32	18,0	17,7 x 44	F40020-1832	F40021-1832
20,00	104	38	20,0	19,7 x 54	F40020-2038	F40021-2038



VHM Schaftfräser – extra lang

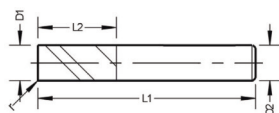
Solid carbide end mill – extra long



<div> <div>VHM</div> <div>DIN 6535 HA</div> <div>30° R</div> <div>Z=4</div> <div>BLANK</div> <div>TiALN</div> </div>					
D1	L1	L2	D2	CODE	CODE
2,00	38	8	2,0	F40022-0208	F40023-0208
2,50	38	8	2,5	F40022-02508	F40023-02508
3,00	38	12	3,0	F40022-0312	F40023-0312
3,50	50	12	3,5	F40022-03512	F40023-03512
4,00	50	12	4,0	F40022-0412	F40023-0412
4,50	50	12	4,5	F40022-04512	F40023-04512
5,00	50	14	5,0	F40022-0514	F40023-0514
5,50	50	14	5,5	F40022-05514	F40023-05514
6,00	50	14	6,0	F40022-0614	F40023-0614
6,50	60	16	6,5	F40022-06516	F40023-06516
7,00	60	18	7,0	F40022-0718	F40023-0718
8,00	60	18	8,0	F40022-0818	F40023-0818
9,00	60	18	9,0	F40022-0918	F40023-0918
10,00	70	20	10,0	F40022-1020	F40023-1020
11,00	70	20	11,0	F40022-1120	F40023-1120
12,00	70	20	12,0	F40022-1220	F40023-1220
13,00	70	20	13,0	F40022-1320	F40023-1320
14,00	75	25	14,0	F40022-1425	F40023-1425
15,00	75	22	15,0	F40022-1522	F40023-1522
16,00	75	22	16,0	F40022-1622	F40023-1622
18,00	100	32	18,0	F40022-1832	F40023-1832
20,00	100	30	20,0	F40022-2030	F40023-2030

VHM Schafffräser – lang

Solid carbide end mill – long



<div> <div>VHM</div> <div></div> <div>DIN 6535</div> <div>HA</div> <div>30° R</div> <div></div> </div>					
<div> <div>UNI</div> <div>Z=4</div> </div>		BLANK		TiALN	
D1	L1	L2	D2	CODE	CODE
2,00	50	7	6,0	F40024-0207	F40025-0207
2,50	50	8	6,0	F40024-02508	F40025-02508
3,00	57	8	6,0	F40024-0308	F40025-0308
3,50	57	10	6,0	F40024-03510	F40025-03510
4,00	57	11	6,0	F40024-0411	F40025-0411
4,50	57	11	6,0	F40024-04511	F40025-04511
5,00	57	13	6,0	F40024-0513	F40025-0513
5,50	57	13	6,0	F40024-05513	F40025-05513
6,00	57	13	6,0	F40024-0613	F40025-0613
6,50	63	16	8,0	F40024-06516	F40025-06516
7,00	63	16	8,0	F40024-0716	F40025-0716
8,00	63	19	8,0	F40024-0819	F40025-0819
9,00	72	19	10,0	F40024-0919	F40025-0919
10,00	72	22	10,0	F40024-1022	F40025-1022
12,00	83	26	12,0	F40024-1226	F40025-1226
14,00	83	26	14,0	F40024-1426	F40025-1426
16,00	92	32	16,0	F40024-1632	F40025-1632
18,00	92	32	18,0	F40024-1832	F40025-1832
20,00	104	38	20,0	F40024-2038	F40025-2038



VHM Schaftfräser – extra lang

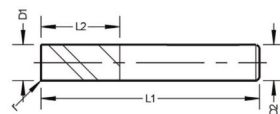
Solid carbide end mill – extra long



D1	L1	L2	D2	CODE	CODE
3,00	57	19	6,0	F40026-0319	F40027-0319
4,00	57	19	6,0	F40026-0419	F40027-0419
4,00	75	25	6,0	F40026-0425	F40027-0425
4,00	75	30	6,0	F40026-0430	F40027-0430
5,00	75	30	6,0	F40026-0530	F40027-0530
6,00	75	30	6,0	F40026-0630	F40027-0630
6,00	100	40	6,0	F40026-0640	F40027-0640
8,00	75	30	8,0	F40026-0830	F40027-0830
8,00	100	40	8,0	F40026-0840	F40027-0840
10,00	75	30	10,0	F40026-1030	F40027-1030
10,00	100	40	10,0	F40026-1040	F40027-1040
10,00	125	60	10,0	F40026-1060	F40027-1060
12,00	100	45	12,0	F40026-1245100	F40027-1245100
12,00	150	45	12,0	F40026-1245	F40027-1245
12,00	150	65	12,0	F40026-1265	F40027-1265
12,00	150	75	12,0	F40026-1275	F40027-1275
14,00	100	45	14,0	F40026-1445	F40027-1445
14,00	150	75	14,0	F40026-1475	F40027-1475
16,00	100	45	16,0	F40026-1645	F40027-1645
16,00	150	65	16,0	F40026-1665	F40027-1665
16,00	150	75	16,0	F40026-1675	F40027-1675
16,00	150	90	16,0	F40026-1690	F40027-1690
18,00	100	45	18,0	F40026-1845	F40027-1845
18,00	150	65	18,0	F40026-1865	F40027-1865
18,00	150	75	18,0	F40026-1875	F40027-1875
20,00	100	45	20,0	F40026-2045	F40027-2045
20,00	150	65	20,0	F40026-2065	F40027-2065
20,00	150	75	20,0	F40026-2075	F40027-2075
20,00	150	90	20,0	F40026-2090	F40027-2090
25,00	120	45	25,0	F40026-2545	F40027-2545
25,00	150	75	25,0	F40026-2575	F40027-2575
25,00	150	90	25,0	F40026-2590	F40027-2590

VHM Schaftfräser – kurz, lang

Solid carbide end mill – short, long



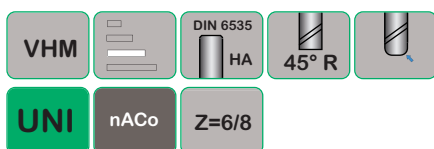
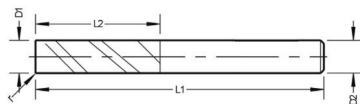
<div> <div>VHM</div> <div> </div> <div> </div> </div> <div> <div>UNI</div> <div>nACo</div> <div>Z=6/8</div> </div>					
D1/r	L1	L2	D2	Z	CODE
5,00	54	10	6,0	6	F40030-0510
6,00	54	10	6,0	6	F40030-0610
6,00/1,0	54	10	6,0	6	F40030-0610/1,0
8,00	58	12	8,0	6	F40030-0812
8,00/1,0	58	12	8,0	6	F40030-0812/1,0
10,00	66	14	10,0	6	F40030-1014
10,00/1,5	66	14	10,0	6	F40030-1014/1,5
12,00	73	16	12,0	6	F40030-1216
12,00/1,5	73	16	12,0	6	F40030-1216/1,5
16,00	82	20	16,0	8	F40030-1620
16,00/2,0	82	20	16,0	8	F40030-1620/2,0
20,00	92	25	20,0	8	F40030-2025
20,00/2,0	92	25	20,0	8	F40030-2025/2,0
25,00	100	32	25,0	8	F40030-2532
25,00/2,5	100	32	25,0	8	F40030-2532/2,5

<div> <div>VHM</div> <div> </div> <div> </div> </div> <div> <div>UNI</div> <div>nACo</div> <div>Z=6/8</div> </div>					
D1/r	L1	L2	D2	Z	CODE
5,00	57	13	6,0	6	F40031-0513
6,00	57	13	6,0	6	F40031-0613
6,00/1,0	57	13	6,0	6	F40031-0613/1,0
8,00	63	19	8,0	6	F40031-0819
8,00/1,0	63	19	8,0	6	F40031-0819/1,0
10,00	72	22	10,0	6	F40031-1022
10,00/1,5	72	22	10,0	6	F40031-1022/1,5
12,00	83	26	12,0	6	F40031-1226
12,00/1,5	83	26	12,0	6	F40031-1226/1,5
16,00	92	32	16,0	8	F40031-1632
16,00/2,0	92	32	16,0	8	F40031-1632/2,0
20,00	104	38	20,0	8	F40031-2038
20,00/2,0	104	35	20,0	8	F40031-2038/2,0
25,00	121	45	25,0	8	F40031-2545
25,00/2,5	121	45	25,0	8	F40031-2545/2,5



VHM Schaftfräser – extra lang

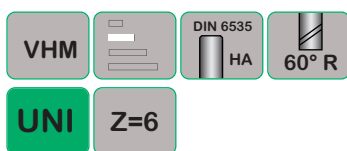
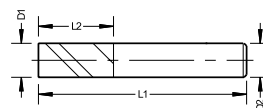
Solid carbide end mill – extra long



D1/r	L1	L2	D2	Z	CODE
5,00	62	18	6,0	6	F40032-0518
6,00	62	18	6,0	6	F40032-0618
6,00/1,0	62	18	6,0	6	F40032-0618/1,0
8,00	68	24	8,0	6	F40032-0824
8,00/1,0	68	24	8,0	6	F40032-0824/1,0
10,00	80	30	10,0	6	F40032-1030
10,00/1,5	80	30	10,0	6	F40032-1030/1,5
12,00	93	36	12,0	6	F40032-1236
12,00/1,5	93	36	12,0	6	F40032-1236/1,5
16,00	108	48	16,0	8	F40032-1648
16,00/2,0	108	48	16,0	8	F40032-1648/2,0
20,00	126	60	20,0	8	F40032-2060
20,00/2,0	126	60	20,0	8	F40032-2060/2,0
25,00	180	92	25,0	8	F40032-2592
25,00/2,5	180	92	25,0	8	F40032-2592/2,5

VHM Schaftfräser – lang

Solid carbide end mill – long

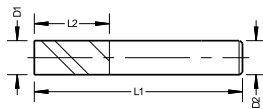


BLANK

nACo

D1	L1	L2	D2	CODE	CODE
6,00	57	13	6,0	F40035-0613	F40036-0613
8,00	63	19	8,0	F40035-0819	F40036-0819
10,00	72	22	10,0	F40035-1022	F40036-1022
12,00	83	26	12,0	F40035-1226	F40036-1226
14,00	83	26	14,0	F40035-1426	F40036-1426
16,00	92	32	16,0	F40035-1632	F40036-1632
18,00	92	32	18,0	F40035-1832	F40036-1832
20,00	104	38	20,0	F40035-2038	F40036-12038

VHM Schafffräser – lang
Solid carbide end mill – long



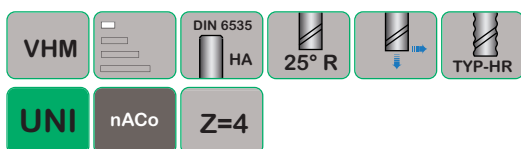
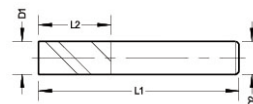
<div> <div>VHM</div> <div> <div>DIN 6535</div> <div>HA</div> </div> <div> <div>50° R</div> <div></div> </div> <div></div> </div> <div> <div>UNI</div> <div>nACo</div> <div>Z=6</div> </div>					
D1 h9	L1	L2	D2 h6	Z	CODE
6,00	57	13	6,0	8,0	F40126-0613
8,00	63	19	8,0	10,0	F40126-0819
10,00	72	22	10,0	12,0	F40126-1022
12,00	83	26	12,0	12,0	F40126-1226
16,00	93	32	16,0	16,0	F40126-1632

<div> <div>VHM</div> <div> <div>DIN 6535</div> <div>HA</div> </div> <div> <div>50° R</div> <div></div> </div> <div></div> </div> <div> <div>UNI</div> <div>nACo</div> <div>Z=6</div> </div>					
D1 h9	L1	L2	D2 h6	Z	CODE
6,00	62	18	6,0	8,0	F40127-0618
8,00	68	24	8,0	10,0	F40127-0824
10,00	80	30	10,0	12,0	F40127-1030
12,00	93	36	12,0	12,0	F40127-1236
16,00	108	48	16,0	16,0	F40127-1648

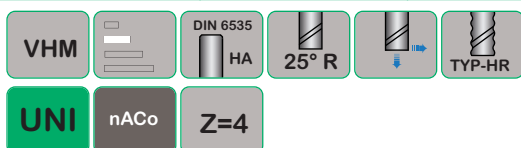


VHM Schrappfräser – kurz / lang

Solid carbide roughing end mill – short / long



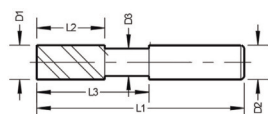
D1 h10	L1	L2	D2 h6	CODE
4,00	54	6	6,0	F40038-0406
5,00	54	8	6,0	F40038-0508
6,00	54	8	6,0	F40038-0608
8,00	58	11	8,0	F40038-0811
10,00	66	13	10,0	F40038-1013
12,00	73	16	12,0	F40038-1216
14,00	75	16	14,0	F40038-1416
16,00	82	19	16,0	F40038-1619
18,00	84	19	18,0	F40038-1819
20,00	92	19	20,0	F40038-2019



D1 h10	L1	L2	D2 h6	CODE
4,00	57	8	6,0	F40039-0457
5,00	57	10	6,0	F40039-0510
6,00	57	13	6,0	F40039-0613
8,00	63	19	8,0	F40039-0819
10,00	72	22	10,0	F40039-1022
12,00	83	26	12,0	F40039-1226
14,00	83	26	14,0	F40039-1426
16,00	92	32	16,0	F40039-1632
18,00	92	32	18,0	F40039-1832
20,00	104	38	20,0	F40039-2038
25,00	121	45	25,0	F40039-2545

VHM Schrappfräser – 2 1/2 xd

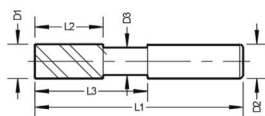
Solid carbide roughing end mill – 2 1/2 xd



VHM	DIN 6535 HA	25° R			TYP-HR	2,5 xD
UNI	nACo	Z=4				
D1 h10	L1	L2	D3	L3	D2 h6	CODE
6,00	62	13	5.7	18	6,0	F40130-0613
8,00	68	20	7.7	24	8,0	F40130-0820
10,00	80	25	9.7	30	10,0	F40130-1025
12,00	93	30	11.7	36	12,0	F40130-1230
14,00	100	35	13.7	42	14,0	F40130-1435
16,00	108	40	15.7	48	16,0	F40130-1640
18,00	115	45	17.6	54	18,0	F40130-1845
20,00	126	50	19.6	60	20,0	F40130-2050

VHM Schrappfräser – extra lang

Solid carbide roughing end mill – extra long



VHM

DIN 6535

HA

25° R

118°

TYP-HR

UNI

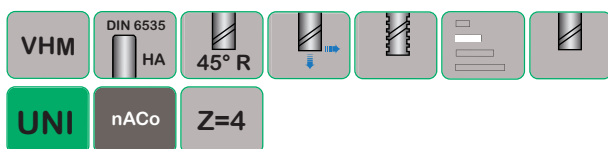
nACo

Z=4

D1 h10	L1	L2	D2 h6	D3 x L3	CODE
6,00	80	15	6	5,8x30	F40040-0615
8,00	85	21	8	7,8x42	F40040-0821
10,00	100	24	10	9,7x48	F40040-1024
12,00	110	28	12	11,7x56	F40040-1228
14,00	110	28	14	13,7x56	F40040-1428
16,00	125	34	16	15,6x68	F40040-1634
18,00	125	34	18	17,6x68	F40040-1834
20,00	140	42	20	19,6x84	F40040-2042

VHM Schrupp-Schlichtfräser – lang

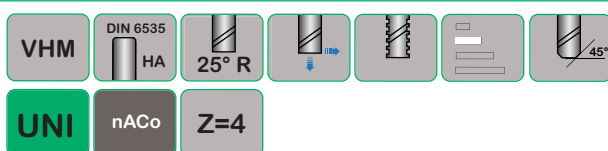
Solid carbide roughing/finishing end mill – long



D1 h10	L1	L2	D2 h6	CODE
4,00	57	11	6	F40132-0411
5,00	57	13	6	F40132-0513
6,00	57	13	6	F40132-0613
8,00	63	19	8	F40132-0819
10,00	72	22	10	F40132-1022
12,00	83	26	12	F40132-1226
14,00	83	26	14	F40132-1426
16,00	92	32	16	F40132-1632
18,00	92	32	18	F40132-1832
20,00	104	38	20	F40132-2038

VHM Schrupp-Schlichtfräser – lang

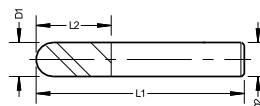
Solid carbide roughing/finishing end mill – long



D1 h10	L1	L2	D2 h6	CODE
6,0	53	13	6	F40133-0613
8,0	64	19	8	F40133-0819
10,0	73	22	10	F40133-1022
12,0	84	26	12	F40133-1226
16,0	93	32	16	F40133-1632
20,0	105	38	20	F40133-2038
25,0	121	45	25	F40133-2545

VHM Radiusfräser – lang

Solid carbide radius milling cutter – long

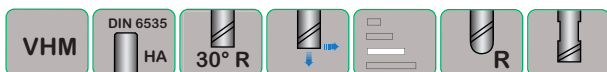
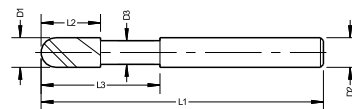


<div> <div>VHM</div> <div>DIN 6535 HA</div> <div>30° R</div> <div></div> <div></div> <div>R</div> </div>					
UNI		Z=2		BLANK	TiALN
D1	L1	L2	D2	CODE	CODE
2,00	50	6	6,0	F40042-0206	F40043-0206
3,00	57	7	6,0	F40042-0307	F40043-0307
4,00	57	8	6,0	F40042-0408	F40043-0408
5,00	57	10	6,0	F40042-0510	F40043-0510
6,00	57	10	6,0	F40042-0610	F40043-0610
7,00	63	16	8,0	F40042-0716	F40043-0716
8,00	63	16	8,0	F40042-0816	F40043-0816
9,00	72	19	10,0	F40042-0919	F40043-0919
10,00	72	19	10,0	F40042-1019	F40043-1019
12,00	83	22	12,0	F40042-1222	F40043-1222
14,00	83	22	14,0	F40042-1422	F40043-1422
16,00	92	26	16,0	F40042-1626	F40043-1626
18,00	92	26	18,0	F40042-1826	F40043-1826
20,00	104	32	20,0	F40042-2032	F40043-2032



VHM Radiusfräser – extra lang

Solid carbide radius milling cutter – extra long



UNI Z=2

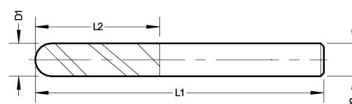
BLANK

TiALN

D1	L1	L2	D2	D3	L3	CODE	CODE
2,00	75	5	6,0	1,8	20	F40044-0205	F40045-0205
3,00	75	6	6,0	2,8	20	F40044-0306	F40045-0306
4,00	75	8	6,0	3,8	20	F40044-0408	F40045-0408
5,00	100	20	6,0	4,8	40	F40044-0520	F40045-0520
6,00	100	20	6,0	5,8	40	F40044-0620	F40045-0620
8,00	100	20	8,0	7,8	40	F40044-0820	F40045-0820
10,00	100	20	10,0	9,8	40	F40044-1020	F40045-1020
10,00	150	20	10,0	9,8	60	F40044-1020150	F40045-1020150
12,00	100	20	12,0	11,7	40	F40044-1220	F40045-1220
12,00	150	20	12,0	11,7	60	F40044-1220150	F40045-1220150
16,00	150	30	16,0	15,7	70	F40044-1630	F40045-1630
18,00	150	30	18,0	17,7	70	F40044-1830	F40045-1830
20,00	150	30	20,0	19,7	80	F40044-2030	F40045-2030

VHM Radiusfräser – extra lang

Solid carbide radius milling cutter – extra long



UNI Z=2

STAHL
steel

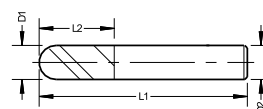
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TiALN

D1	L1	L2	D2	CODE	CODE
4,00	75	8	4,0 HA	F40046-0408	F40047-0408
6,00	100	10	6,0 HA	F40046-0610	F40047-0610
8,00	100	12	8,0 HA	F40046-0812	F40047-0812
10,00	100	14	10,0 HA	F40046-1014	F40047-1014
12,00	100	16	12,0 HA	F40046-1216	F40047-1216
16,00	150	22	16,0 HA	F40046-1622	F40047-1622
20,00	150	26	20,0 HA	F40046-2026	F40047-2026

VHM Radiusfräser – lang

Solid carbide radius milling cutter – long

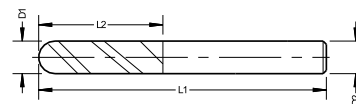


<div> <div>VHM</div> <div>DIN 6535 HA</div> <div>30° R</div> <div></div> <div></div> <div>R</div> </div>					
<div> <div>UNI</div> <div>Z=4</div> </div>		<div> <div>BLANK</div> </div>		<div> <div>TiALN</div> </div>	
D1	L1	L2	D2	CODE	CODE
2,00	57	6	6,0	F40048-0206	F40049-0206
3,00	57	8	6,0	F40048-0308	F40049-0308
4,00	57	11	6,0	F40048-0411	F40049-0411
5,00	57	13	6,0	F40048-0513	F40049-0513
6,00	57	13	6,0	F40048-0613	F40049-0613
8,00	63	19	8,0	F40048-0819	F40049-0819
10,00	72	22	10,0	F40048-1022	F40049-1022
12,00	83	26	12,0	F40048-1226	F40049-1226
14,00	83	26	14,0	F40048-1426	F40049-1426
16,00	92	32	16,0	F40048-1632	F40049-1632
18,00	92	32	18,0	F40048-1832	F40049-1832
20,00	104	38	20,0	F40048-2038	F40049-2038



VHM Radiusfräser – kurz, extra lang

Solid carbide radius milling cutter – short, extra long



UNI

Z=4

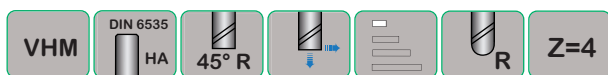
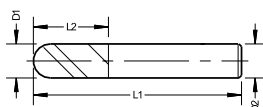
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TiALN

D1	L1	L2	D2	CODE	CODE
3,00	57	20	6,0	F40050-0320	F40051-0320
4,00	57	20	6,0	F40050-0420	F40051-0420
5,00	75	30	6,0	F40050-0530	F40051-0530
6,00	75	30	6,0	F40050-0630	F40051-0630
6,00	100	40	6,0	F40050-0640	F40051-0640
8,00	75	30	8,0	F40050-0830	F40051-0830
8,00	100	40	8,0	F40050-0840	F40051-0840
10,00	75	30	10,0	F40050-1030	F40051-1030
10,00	100	40	10,0	F40050-1040	F40051-1040
12,00	100	45	12,0	F40050-1245100	F40051-1245100
12,00	150	45	12,0	F40050-1245	F40051-1245
12,00	150	65	12,0	F40050-1265	F40051-1265
14,00	100	45	14,0	F40050-1445	F40051-1445
14,00	150	65	14,0	F40050-1465	F40051-1465
16,00	100	45	16,0	F40050-1645	F40051-1645
16,00	150	65	16,0	F40050-1665	F40051-1665
16,00	150	90	16,0	F40050-1690	F40051-1690
18,00	100	45	18,0	F40050-1845	F40051-1845
18,00	150	65	18,0	F40050-1865	F40051-1865
20,00	100	45	20,0	F40050-2045	F40051-2045
20,00	150	65	20,0	F40050-2065	F40051-2065
20,00	150	90	20,0	F40050-2090	F40051-2090

VHM Radiusfräser – kurz

Solid carbide ball nose end mills – short



UNI

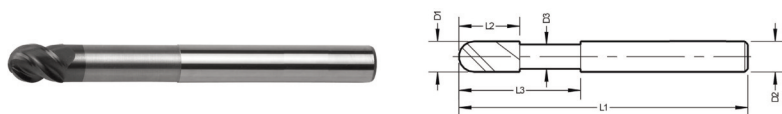
TiALN

Z=4

D1	L1	L2	L3	D3	D2	CODE
6,00	54	10	20,0	5,8	6,0	F40052-0610
8,00	58	12	25,0	5,8	8,0	F40052-0812
10,00	66	14	27,0	7,8	10,0	F40052-1014
12,00	73	16	35,0	7,8	12,0	F40052-1216
14,00	75	18	30,0	9,8	14,0	F40052-1418
16,00	82	22	40,0	9,8	16,0	F40052-1622
20,00	92	26	35,0	11,7	20,0	F40052-2026

VHM Radiusfräser – extra lang

Solid carbide radius milling cutter – extra long



VHM	DIN 6535 HA	45° R				Z=4
UNI	TiALN					
D1	L1	L2	L3	D3	D2	CODE
6,00	100	10	40,0	5,8	6,0	F40053-0610
8,00	100	12	40,0	7,8	8,0	F40053-0812
10,00	100	14	40,0	9,7	10,0	F40053-1014
12,00	100	16	40,0	11,7	12,0	F40053-1216
14,00	100	18	40,0	13,7	14,0	F40053-1418
16,00	150	22	70,0	15,6	16,0	F40053-1622
20,00	150	26	70,0	19,6	20,0	F40053-2026

VHM Torusfräser – extra lang

Solid carbide torus cutter – extra long





VHM


DIN 6535

HA

30° R







Z=2

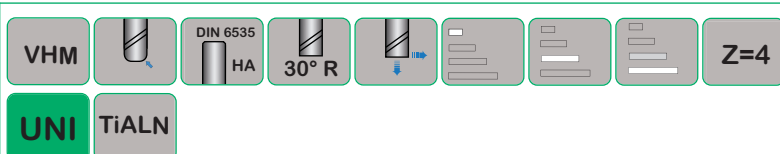
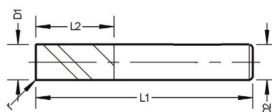
UNI

nACo

D1	L1	L2	D2	D3	L3	r	CODE
2,00	103	4	3,0	1,9	20,0	0.2	F40056-0204
3,00	103	6	3,0	2,9	30,0	0.3	F40056-0306
4,00	103	8	4,0	3,9	40,0	0.4	F40056-0408
5,00	125	10	5,0	4,9	70,0	0.5	F40056-0510
6,00	135	12	6,0	5,9	80,0	0.5	F40056-0612
8,00	150	16	8,0	7,8	90,0	0.5	F40056-0816

VHM Torusfräser – kurz, lang, extra lang

Solid carbide torus cutter – short, long, extra long



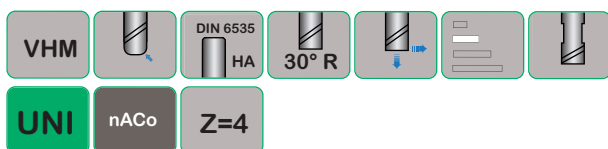
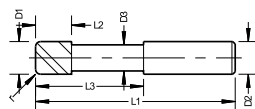
D1	L1	L2	D2	r	CODE
4,0	50	10	6	0,5	F40134-0,5/04010050
4,0	50	10	6	1,0	F40134-1,0/04010050
4,0	58	20	6	0,5	F40134-0,5/04020058
4,0	58	20	6	1,0	F40134-1,0/04020058
4,0	75	25	6	0,5	F40134-0,5/04025075
4,0	75	25	6	1,0	F40134-1,0/04025075
5,0	50	10	6	0,5	F40134-0,5/05010050
5,0	50	10	6	1,0	F40134-1,0/05010050
5,0	58	20	6	0,5	F40134-0,5/05020058
5,0	58	20	6	1,0	F40134-1,0/05020058
5,0	75	30	6	0,5	F40134-0,5/05030075
5,0	75	30	6	1,0	F40134-1,0/05030075
6,0	50	10	6	0,5	F40134-0,5/06010050
6,0	50	10	6	1,0	F40134-1,0/06010050
6,0	50	10	6	1,5	F40134-1,5/06010050
6,0	75	30	6	0,5	F40134-0,5/06030075
6,0	75	30	6	1,0	F40134-1,0/06030075
6,0	75	30	6	1,5	F40134-1,5/06030075
6,0	100	40	6	0,5	F40134-0,5/06040100
6,0	100	40	6	1,0	F40134-1,0/06040100
6,0	100	40	6	1,5	F40134-1,5/06040100
8,0	58	10	8	0,5	F40134-0,5/08010058
8,0	58	10	8	1,0	F40134-1,0/08010058
8,0	58	10	8	1,5	F40134-1,5/08010058
8,0	75	30	8	0,5	F40134-0,5/08030075
8,0	75	30	8	1,0	F40134-1,0/08030075
8,0	75	30	8	1,5	F40134-1,5/08030075
8,0	100	40	8	0,5	F40134-0,5/08040100
8,0	100	40	8	1,0	F40134-1,0/08040100
8,0	100	40	8	1,5	F40134-1,5/08040100
10,0	66	15	10	0,5	F40134-0,5/10015066
10,0	66	15	10	1,0	F40134-1,0/10015066
10,0	66	15	10	2,0	F40134-2,0/10015066
10,00	75	35	10	0,5	F40134-0,5/10035075
10,00	75	35	10	1,0	F40134-1,0/10035075
10,00	75	35	10	2,0	F40134-2,0/10035075
10,00	100	50	10	0,5	F40134-0,5/10050100
10,00	100	50	10	1,0	F40134-1,0/10050100
10,00	100	50	10	2,0	F40134-2,0/10050100

D1	L1	L2	D2	r	CODE
12,00	73	15	12	0,5	F40134-0,5/12015073
12,00	73	15	12	1,0	F40134-1,0/12015073
12,00	73	15	12	2,0	F40134-2,0/12015073
12,00	100	45	12	0,5	F40134-0,5/12045100
12,00	100	45	12	1,0	F40134-1,0/12045100
12,00	100	45	12	2,0	F40134-2,0/12045100
12,00	150	75	12	0,5	F40134-0,5/12075150
12,00	150	75	12	1,0	F40134-1,0/12075150
12,00	150	75	12	2,0	F40134-2,0/12075150
16,00	75	20	16	1,0	F40134-1,0/16020075
16,00	75	20	16	2,0	F40134-2,0/16020075
16,00	75	20	16	3,0	F40134-3,0/16020075
16,00	100	50	16	1,0	F40134-1,0/16050100
16,00	100	50	16	2,0	F40134-2,0/16050100
16,00	100	50	16	3,0	F40134-3,0/16050100
16,00	150	75	16	1,0	F40134-1,0/16075150
16,00	150	75	16	2,0	F40134-2,0/16075150
16,00	150	75	16	3,0	F40134-3,0/16075150
20,00	93	20	20	1,0	F40134-1,0/20020093
20,00	93	20	20	2,0	F40134-2,0/20020093
20,00	93	20	20	3,0	F40134-3,0/20020093
20,00	120	55	20	1,0	F40134-1,0/20055120
20,00	120	55	20	2,0	F40134-2,0/20055120
20,00	120	55	20	3,0	F40134-3,0/20055120
20,00	150	75	20	1,0	F40134-1,0/20075150
20,00	150	75	20	2,0	F40134-2,0/20075150
20,00	150	75	20	3,0	F40134-3,0/20075150



VHM Torusfräser – lang

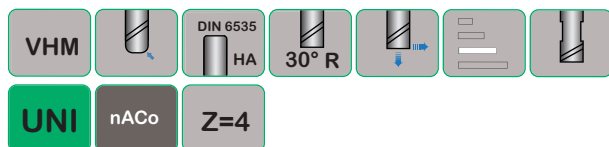
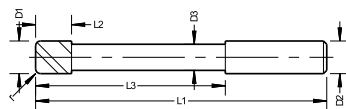
Solid carbide torus cutter – long



D1/r	L1	L2	D2	D3	L3	CODE
2,0/0,1	40	4	2,0	1,8	12	F40057-0204/0,1
2,0/0,3	40	4	2,0	1,8	12	F40057-0204/0,3
3,0/0,3	50	4	3,0	2,7	14	F40057-0304/0,3
3,0/1,0	50	4	3,0	2,7	14	F40057-0304/1,0
4,0/0,4	50	5	4,0	3,7	16	F40057-0405/0,4
4,0/1,0	50	5	4,0	3,7	16	F40057-0405/1,0
5,0/0,5	54	6	5,0	4,6	18	F40057-0506/0,5
5,0/1,0	54	6	5,0	4,6	18	F40057-0506/1,0
6,0/0,5	57	7	6,0	5,5	21	F40057-0607/0,5
6,0/1,0	57	7	6,0	5,5	21	F40057-0607/1,0
6,0/1,5	57	7	6,0	5,5	21	F40057-0607/1,5
8,0/0,5	63	9	8,0	7,4	27	F40057-0809/0,5
8,0/1,0	63	9	8,0	7,4	27	F40057-0809/1,0
8,0/1,5	63	9	8,0	7,4	27	F40057-0809/1,5
8,0/2,0	63	9	8,0	7,4	27	F40057-0809/2,0
10,0/0,5	72	11	10,0	9,2	32	F40057-1011/0,5
10,0/1,0	72	11	10,0	9,2	32	F40057-1011/1,0
10,0/1,5	72	11	10,0	9,2	32	F40057-1011/1,5
10,0/2,0	72	11	10,0	9,2	32	F40057-1011/2,0
12,0/0,5	83	12	12,0	11,0	38	F40057-1212/0,5
12,0/1,0	83	12	12,0	11,0	38	F40057-1212/1,0
12,0/1,5	83	12	12,0	11,0	38	F40057-1212/1,5
12,0/2,0	83	12	12,0	11,0	38	F40057-1212/2,0
16,0/2,0	92	16	16,0	15,0	44	F40057-1616/2,0
20,0/2,5	104	20	20,0	18,5	50	F40057-2020/2,5

VHM Torusfräser – extra lang

Solid carbide torus cutter – extra long

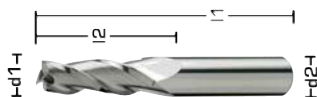


D1 h9 / r	L1	L2	D2 h6	D3 x L3	CODE
2,0/0,1	60	4	2,0	1,8x20	F40058-0204/0,1
2,0/0,3	60	4	2,0	1,8x20	F40058-0204/0,3
3,0/0,3	75	4	3,0	2,7x32	F40058-0304/0,3
3,0/1,0	75	4	3,0	2,7x32	F40058-0304/1,0
4,0/0,4	75	5	4,0	3,7x36	F40058-0405/0,4
4,0/1,0	75	5	4,0	3,7x36	F40058-0405/1,0
5,0/0,5	75	6	5,0	4,6x40	F40058-0506/0,5
5,0/1,0	75	6	5,0	4,6x40	F40058-0506/1,0
6,0/0,5	80	7	6,0	5,5x44	F40058-0607/0,5
6,0/1,0	80	7	6,0	5,5x44	F40058-0607/1,0
6,0/1,5	80	7	6,0	5,5x44	F40058-0607/1,5
8,0/0,5	100	9	8,0	7,4x54	F40058-0809/0,5
8,0/1,0	100	9	8,0	7,4x54	F40058-0809/1,0
8,0/1,5	100	9	8,0	7,4x54	F40058-0809/1,5
8,0/2,0	100	9	8,0	7,4x54	F40058-0809/2,0
10,0/0,5	100	11	10,0	9,2x60	F40058-1011/0,5
10,0/1,0	100	11	10,0	9,2x60	F40058-1011/1,0
10,0/1,5	100	11	10,0	9,2x60	F40058-1011/1,5
10,0/2,0	100	11	10,0	9,2x60	F40058-1011/2,0
12,0/0,5	120	12	12,0	11,0x75	F40058-1212/0,5
12,0/1,0	120	12	12,0	11,0x75	F40058-1212/1,0
12,0/1,5	120	12	12,0	11,0x75	F40058-1212/1,5
12,0/2,0	120	12	12,0	11,0x75	F40058-1212/2,0
16,0/2,0	150	16	16,0	15,0x92	F40058-1616/2,0
20,0/2,5	150	20	20,0	18,5x92	F40058-2020/2,5



VHM Schaftfräser – konisch 0,5°; 1° und 1,5°

Solid carbide end mill – conical 0.5°; 1° and 1.5°



Z=3/4

 DIN 6535
HA

30° R



0,5°

UNI

BLANK

h10 < d1	> d1 h6	d2 h6	l2	l1	Z	CODE
2,5	2.85	4,0	20	57	3	F40171-02520
3,0	3.35	4,0	20	57	3	F40171-03020
4,0	4.35	5,0	20	57	3	F40171-04020
5,0	5.52	6,0	30	75	3	F40171-05030
6,0	6.52	8,0	30	75	3	F40171-06030
8,0	8.52	10,0	30	75	4	F40171-08030
10,0	10.52	12,0	30	83	4	F40171-10030
12,0	12.52	14,0	30	83	4	F40171-12030
12,0/1	12.87	14,0	50	100	4	F40171-12030/1,0
16,0	17.05	18,0	60	115	4	F40171-16030

1°

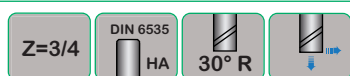
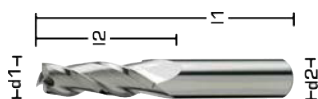
h10 < d1	> d1 h6	d2 h6	l2	l1	Z	CODE
2,5	3,20	4,0	20	57	3	F40172-02520
3,0	3,70	4,0	20	57	3	F40172-03020
4,0	4,70	5,0	20	57	3	F40172-04020
5,0	6,00	6,0	30	75	3	F40172-05030
6,0	7,05	8,0	30	75	3	F40172-06030
8,0	9,05	10,0	30	75	4	F40172-08030
10,0	11,05	12,0	30	83	4	F40172-10030
12,0	13,05	14,0	30	83	4	F40172-12030
12,0/1	13,75	14,0	50	103	4	F40172-12030/1,0
16,0	18,00	18,0	57	115	4	F40172-16057

1,5°

h10 < d1	> d1 h6	d2 h6	l2	l1	Z	CODE
2,5	3,55	4,0	20	57	3	F40173-02520
3,0	4,00	4,0	19	57	3	F40173-03019
4,0	5,00	5,0	19	57	3	F40173-04019
5,0	6,57	8,0	30	75	3	F40173-05030
6,0	7,57	8,0	30	75	3	F40173-06030
8,0	9,57	10,0	30	75	4	F40173-08030
10,0	11,57	12,0	30	83	4	F40173-10030
12,0	13,57	14,0	30	83	4	F40173-12030
12,0/1	14,62	16,0	50	110	4	F40173-12050/1
16,0	18,62	20,0	50	115	4	F40173-16050

VHM Schaftfräser – konisch 2°; 3°

Solid carbide end mill – conical 2°; 3°



UNI **BLANK**

2°

h10 < d1	> d1 h6	d2 h6	l2	l1	Z	CODE
2,5	3,90	4,0	20	57	3	F40174-02520
3,0	4,40	5,0	20	57	3	F40174-03020
3,5	4,90	5,0	20	57	3	F40174-03520
4,0	5,40	6,0	20	65	3	F40174-04030
4,5	6,60	8,0	30	75	3	F40174-04530
5,0	7,10	8,0	30	75	3	F40174-05030
5,0/1	9,19	10,0	60	110	3	F40174-05060/1
6,0	7,96	8,0	28	75	3	F40174-06028
6,0/1	9,98	10,0	57	110	4	F40174-06057/1
8,0	9,96	10,0	28	75	4	F40174-08028
8,0/1	11,98	12,0	57	110	4	F40174-08057/1
10,0	11,96	12,0	28	83	4	F40174-10028
12,0	13,96	14,0	28	83	4	F40174-12028
12,0/1	15,94	16,0	56	115	4	F40174-12056/1
16,0	19,49	20,0	50	115	4	F40174-16050

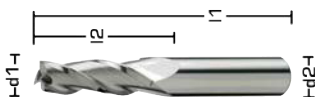
3°

h10 < d1	> d1 h6	d2 h6	l2	l1	Z	CODE
2,5	4,60	6,0	20	63	3	F40175-02520
3,0	5,62	6,0	25	75	3	F40175-03025
3,0	7,19	8,0	40	90	3	F40175-03040
4,0	7,14	8,0	30	75	3	F40175-04030
5,0	9,19	10,0	40	90	3	F40175-05040
6,0	9,14	10,0	30	75	3	F40175-06030
6,0/1	11,24	12,0	50	104	3	F40175-06050/1
8,0	11,14	12,0	30	83	4	F40175-08030
8,0/1	13,24	14,0	50	104	4	F40175-08050/1
10,0	13,14	14,0	30	83	4	F40175-10030
10,0/1	15,24	16,0	50	104	4	F40175-10050/1
12,0	17,24	18,0	50	104	4	F40175-12050



VHM Schaftfräser – konisch 5°; 7° und 10°

Solid carbide end mill – conical 5°; 7° und 10°



UNI **BLANK**

5°

h10 < d1	> d1 h6	d2 h6	l2	l1	Z	CODE
2,5	6,00	6,0	20	65	3	F40176-02520
3,0	8,25	10,0	30	75	3	F40176-03030
3,0/1	10,00	10,0	40	100	3	F40176-03040/1
3,5	12,00	12,0	49	104	3	F40176-03549
4,0	8,00	8,0	23	63	3	F40176-04023
4,0/1	9,25	10,0	30	75	3	F40176-04030/1
4,0/2	11,00	12,0	40	100	3	F40176-04040/2
5,0	12,00	12,0	40	100	3	F40176-05040
6,0	11,25	12,0	30	83	3	F40176-06030
6,0/1	14,75	16,0	50	104	3	F40176-06050/1
8,0	16,75	18,0	50	104	4	F40176-08050
10,0	15,25	16,0	30	92	4	F40176-10030
10,0/1	18,75	20,0	50	104	4	F40176-10050/1
12,0	17,25	18,0	30	92	4	F40176-12030
12,0/1	19,87	20,0	45	104	4	F40176-12045/1

7°

h10 < d1	> d1 h6	d2 h6	l2	l1	Z	CODE
2,5	7,41	8,0	20	63	3	F40177-02520
5,0	11,14	12,0	25	73	3	F40177-05025

10°

h10 < d1	> d1 h6	d2 h6	l2	l1	Z	CODE
2,5	9,55	10,0	20	72	3	F40178-02520
3,0	13,58	14,0	30	83	3	F40178-03030
6,0	15,87	16,0	28	92	3	F40178-06028

VHM Radiusfräser – konisch 0,5°; 1° und 1,5°

Solid carbide radius milling cutter – conical 0.5°; 1° und 1.5°



UNI

BLANK

0,5°

h10 < d1	> d1 h6	d2 h6	l2	l1	Z	CODE
2,5	2.85	4,0	20	57	3	F40179-02520
3,0	3.35	4,0	20	57	3	F40179-03020
4,0	4.35	5,0	20	57	3	F40179-04020
5,0	5.52	6,0	30	75	3	F40179-05030
6,0	6.52	8,0	30	75	3	F40179-06030
8,0	8.52	10,0	30	75	4	F40179-08030
10,0	10.52	12,0	30	83	4	F40179-10030
12,0	12.52	14,0	30	83	4	F40179-12030
12,0/1	12.87	14,0	50	100	4	F40179-12050/1
16,0	17.05	18,0	60	115	4	F40179-16060

1°

h10 < d1	> d1 h6	d2 h6	l2	l1	Z	CODE
2,5	3,20	4,0	20	57	3	F40180-02520
3,0	3,70	4,0	20	57	3	F40180-03020
4,0	4,70	5,0	20	57	3	F40180-04020
5,0	6,00	6,0	30	75	3	F40180-05030
6,0	7,05	8,0	30	75	3	F40180-06030
8,0	9,05	10,0	30	75	4	F40180-08030
10,0	11,05	12,0	30	83	4	F40180-10030
12,0	13,05	14,0	30	83	4	F40180-12030
12,0/1	13,75	14,0	50	106	4	F40180-12050/1
16,0	18,00	18,0	57	115	4	F40180-16057

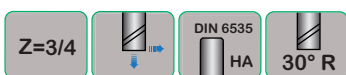
1,5°

h10 < d1	> d1 h6	d2 h6	l2	l1	Z	CODE
2,5	3,55	4,0	20	57	3	F40181-02520
3,0	4,00	4,0	19	57	3	F40181-03019
4,0	5,00	5,0	19	57	3	F40181-04019
5,0	6,57	8,0	30	75	3	F40181-05030
6,0	7,57	8,0	30	75	3	F40181-06030
8,0	9,57	10,0	30	75	4	F40181-08030
10,0	11,57	12,0	30	83	4	F40181-10030
12,0	13,57	14,0	30	83	4	F40181-12030
12,0/1	14,62	16,0	50	110	4	F40181-12050/1
16,0	18,62	20,0	50	115	4	F40181-16050



VHM Radiusfräser – konisch 2°; 3°

Solid carbide radius milling cutter – conical 2°; 3°



UNI BLANK

2°

h10 < d1	> d1 h6	d2 h6	l2	l1	Z	CODE
2,5	3.9	4,0	20	57	3	F40182-02520
3,0	4.4	5,0	20	57	3	F40182-03020
3,5	4.9	5,0	20	57	3	F40182-03520
4,0	5.4	6,0	20	65	3	F40182-04020
4,5	6.6	8,0	30	75	3	F40182-04530
5,0	7.1	8,0	30	75	3	F40182-05030
5,0/1	9.19	10,0	60	110	3	F40182-05060/1
6,0	7.96	8,0	28	75	3	F40182-06028
6,0/1	9.98	10,0	57	110	4	F40182-06057/1
8,0	9.96	10,0	28	75	4	F40182-08028
8,0/1	11.98	12,0	57	110	4	F40182-08057/1
10,0	11.96	12,0	28	83	4	F40182-10028
12,0	13.96	14,0	28	83	4	F40182-12028
12,0/1	15.94	16,0	56	115	4	F40182-12056/1
16,0	19.49	20,0	50	115	4	F40182-16050

3°

h10 < d1	> d1 h6	d2 h6	l2	l1	Z	CODE
2,5	4,60	6,0	20	63	3	F40183-02520
3,0	5,62	6,0	25	75	3	F40183-03025
3,0	7,19	8,0	40	90	3	F40183-03040
4,0	7,14	8,0	30	75	3	F40183-04030
5,0	9,19	10,0	40	90	3	F40183-05040
6,0	9,14	10,0	30	75	3	F40183-06030
6,0/1	11,24	12,0	50	104	3	F40183-06050/1
8,0	11,14	12,0	30	83	4	F40183-08030
8,0/1	13,24	14,0	50	104	4	F40183-08050/1
10,0	13,14	14,0	30	83	4	F40183-10030
10,0/1	15,24	16,0	50	104	4	F40183-10050/1
12,0	17,24	18,0	50	104	4	F40183-12050

VHM Radiusfräser – konisch 5°; 7° und 10°

Solid carbide radius milling cutter – conical 5°; 7° and 10°

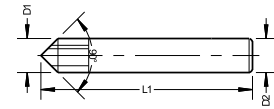


Z=3/4		DIN 6535 HA				
UNI	BLANK					5°
h10 < Ø	> Ø h6	d2 h6	SL	GL	Z	CODE
2,5	6,00	6,0	20	65	3	F40184-02520
3,0	8,25	10,0	30	75	3	F40184-03030
3,0/1	10,00	10,0	40	100	3	F40184-03040/1
3,5	12,00	12,0	49	104	3	F40184-03549
4,0	8,00	8,0	23	63	3	F40184-04023
4,0/1	9,25	10,0	30	75	3	F40184-04030/1
4,0/2	11,00	12,0	40	100	3	F40184-04040/2
5,0	12,00	12,0	40	100	3	F40184-05040
6,0	11,26	12,0	30	83	3	F40184-06030
6,0/1	14,75	16,0	50	104	3	F40184-06050/1
8,0	16,75	18,0	50	104	4	F40184-08050
10,0	15,25	16,0	30	92	4	F40184-10030
10,0/1	18,75	20,0	50	104	4	F40184-10050/1
12,0	17,25	18,0	30	92	4	F40184-12030
12,0/1	19,87	20,0	45	104	4	F40184-12045/1
						7°
h10 < Ø	> Ø h6	d2 h6	SL	GL	Z	CODE
2,5	7,41	8,0	20	63	3	F40185-02520
5,0	11,14	12,0	25	73	3	F40185-05025
						10°
h10 < Ø	> Ø h6	d2 h6	SL	GL	Z	CODE
2,5	9,55	10,0	20	72	3	F40186-02520
3,0	13,58	14,0	30	83	3	F40186-03030
6,0	15,87	16,0	28	92	3	F40186-06028
8,0	18,58	20,0	30	104	4	F40186-08030



VHM Entgratfräser 90°

Solid carbide deburring mill 90°



VHM		DIN 6535 HA		
UNI	Z=4		BLANK	TiALN
D1 h9	L1	D2 h6	CODE	CODE
4,00	50,00	4,00	F40064-0450	F40155-0450
5,00	50,00	5,00	F40064-0550	F40155-0550
6,00	50,00	6,00	F40064-0650	F40155-0650
8,00	63,00	8,00	F40064-0863	F40155-0863
10,00	72,00	10,00	F40064-1072	F40155-1072
12,00	84,00	12,00	F40064-1284	F40155-1284
16,00	93,00	16,00	F40064-1693	F40155-1693
20,00	104,00	20,00	F40064-20104	F40155-20104

VHM Entgrater 90°

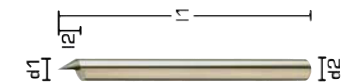
Solid carbide deburring mill 90°



VHM		DIN 6535 HA		
UNI	Z=3	Z=4		nACo
d	D	L	Z	CODE
1,80	6,0	100	3	F40214-0180100
2,80	6,0	100	3	F40214-0280100
4,00	6,0	100	4	F40214-0400100
6,00	6,0	100	4	F40214-0600100
8,00	6,0	100	4	F40214-0800100
10,00	6,0	100	4	F40214-1000100
12,00	6,0	100	4	F40214-1200100
16,00	10,0	100	4	F40214-1600100

VHM Gravierstichel mit Spitze fertiggeschliffen

Solid carbide graver with finished point



VHM

HA

60°

BLANK

UNI

Z=1

d1	l2	l1	CODE
2,00	3,00	50	F40187-02000350
2,50	3,00	50	F40187-02500350
3,00	4,50	50	F40187-03004550
4,00	6,00	50	F40187-04000650
5,00	7,50	50	F40187-05007550
6,00	9,00	50	F40187-06000950
7,00	11,50	50	F40187-07011550
8,00	12,00	50	F40187-08001250




UNI

d1	l2	l1	CODE
2,00	3,00	100	F40187-020003100
2,50	3,00	100	F40187-025003100
3,00	4,50	100	F40187-030045100
4,00	6,00	100	F40187-040006100
5,00	7,50	100	F40187-050075100
6,00	9,00	100	F40187-060009100
7,00	11,50	100	F40187-070115100
8,00	12,00	100	F40187-080012100
9,00	13,50	100	F40187-090113100
10,00	15,00	100	F40187-100015100
11,00	16,50	100	F40187-110165100
12,00	18,00	100	F40187-120165100
14,00	21,00	100	F40187-140021100
16,00	24,00	100	F40187-160024100

VHM Universal-Gravierfräser

Solid carbide unispecial engraving end mill



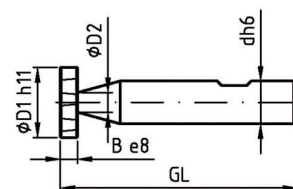
VHM			TiAlN		
UNI					
d1	l3	l2	l1	d2 h6	CODE
3,00	2	10	40	3	F40188-030010040
4,00	3	10	40	4	F40188-040010040
6,00	5	10	50	5	F40188-060010050



VHM Hochleistungs-Schlitzfräser

Solid carbide high performance Woodruff keyseating cutter

Zum Fräsen von Scheibenfedernuten nach DIN 6888 oder zum Fräsen kleiner Schlitz.
For milling Woodruff keyways to DIN 6888 or for milling small slots.



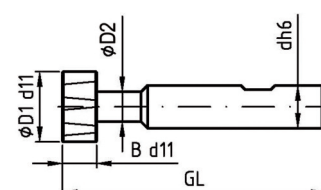
VHM DIN 850 D/F TYP N UNI

D1xB h11xe8 (mm)	für Scheibenfedern / for Woodruff keyways to DIN 6888	D2 (mm)	GL (mm)	Z (mm)	d (mm)	fz (mm)	CODE
10,5 x 2	2,0 x 3,7	4,0	50	6	6	0,035	F40189-10502
10,5 x 3	3,0 x 3,7	4,2	50	6	6	0,035	F40189-10503
13,5 x 2	2,0 x 5,0	4,6	56	8	10	0,035	F40189-13502
13,5 x 3	3,0 x 5,0	4,6	56	8	10	0,035	F40189-13503
13,5 x 4	4,0 x 5,0	4,6	56	8	10	0,035	F40189-13504
16,5 x 3	3,0 x 6,5	4,6	56	10	10	0,035	F40189-16503
16,5 x 4	4,0 x 6,5	4,6	56	10	10	0,035	F40189-16504
19,5 x 3	3,0 x 7,5	5,6	63	10	10	0,038	F40189-19503
19,5 x 4	4,0 x 7,5	5,6	63	10	10	0,038	F40189-19504
22,5 x 4	4,0 x 9,0	6,0	63	10	10	0,038	F40189-22504
25,5 x 5	5,0 x 10,0	7,5	63	10	10	0,038	F40189-25505
28,5 x 5	5,0 x 11,0	8,5	63	10	10	0,040	F40189-28505
32,5 x 5	5,0 x 13,0	8,5	71	10	10	0,040	F40189-32505
38,5 x 10	10,0 x 15,0	11,8	71	10	10	0,040	F40189-38510
45,5 x 10	10,0 x 16,0	11,8	71	10	10	0,040	F40189-45510

VHM T-Nutenfräser

Solid carbide T-slot cutter

Zum Fräsen von T-Nuten nach DIN 650.
For milling T-slots to DIN 650.



VHM DIN 851 TYP N UNI

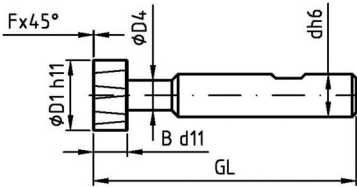
DxB h11xd11 (mm)	für T-Nuten / for T-slots DIN 650	D2 (mm)	GL (mm)	Z (mm)	d (mm)	45°	fz (mm)	CODE
12,5 x 6	6	5	57	6	10	0,2	0,033	F40190-10502
16 x 8	8	7	62	6	10	0,2	0,034	F40190-16008
18 x 8	10	8	70	6	12	0,2	0,034	F40190-18008
21 x 9	12	10	74	6	12	0,2	0,034	F40190-21009
25 x 11	14	12	82	6	16	0,2	0,034	F40190-25011
28 x 12	16	13	85	6	16	0,2	0,035	F40190-28012
32 x 14	18	15	90	6	16	0,2	0,035	F40190-32014

VHM T-Nutenfräser mit Schrupp-Schlichtprofil

Solid carbide T-slot cutter with semi-roughing profile



Zum Fräsen von T-Nuten nach DIN 650.
For milling T-slots to DIN 650.



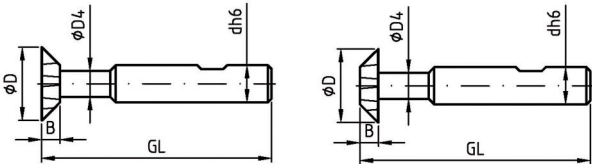
VHM DIN 851 TYP NF UNI

Øx d11xd11 (mm)	für T-Nuten / for T-slots DIN 650	D4 (mm)	GL (mm)	Z (mm)	h6 (mm)	fz (mm)	CODE
12,5 x 6	6	5	57	6	10	0,033	F40191-12506
16 x 8	8	7	62	6	10	0,034	F40191-16008
18 x 8	10	8	70	6	12	0,034	F40191-18008
21 x 9	12	10	74	6	12	0,034	F40191-21009
25 x 11	14	12,0	82	6	16	0,034	F40191-25011
28 x 12	16	13,0	85	6	16	0,035	F40191-28012
32 x 14	18	15,0	90	6	16	0,035	F40191-32014

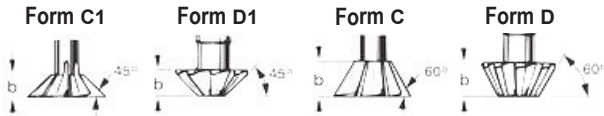
VHM Multifräser

Solid carbide multi end mill

Zum Fräsen von Führungen im Werkzeug- und Maschinenbau.
For milling dovetails in tool making and machine building



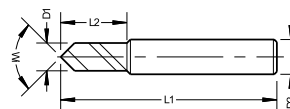
VHM DIN 851 js 16 Z 6-10 UNI



Ø js16 Dc (mm)	Maß / dimension b		D4				GL	Z	d	fz	Form C 45°	Form D 45°	Form C 60°	Form D 60°
	C1 / D1	C / D (mm)	C1 (mm)	D1 (mm)	C (mm)	D (mm)					CODE	CODE	CODE	CODE
16	4	6,3	6,7	8	6	8,2	60	6	10	0,042	F40192-1660	F40193-1660	F40194-1660	F40195-1660
20	5	8	7	10	7,8	10,5	63	8	12	0,042	F40192-2063	F40193-2063	F40194-2063	F40195-2063
22	6	9	8	10,2	10	10,2	67	8	12	0,043	F40192-2267	F40193-2267	F40194-2267	F40195-2267
25	6,3	10	8	11	9	11,5	67	8	12	0,046	F40192-2567	F40193-2567	F40194-2567	F40195-2567
28	7,5	11	8,5	14	13	14	80	10	16	0,045	F40192-2810	F40193-2810	F40194-2810	F40195-2810
32	8	12,5	13	15	15	15	71	10	16	0,045	F40192-3271	F40193-3271	F40194-3271	F40195-3271
38	10	16	15	15	15	15	80	10	16	0,045	F40192-3880	F40193-3880	F40194-3880	F40195-3880

VHM Multifräser

Solid carbide multi end mill



UNI **BLANK**

D1	L1	L2	D2	CODE
3,0	50	6	4,0	F40059-0306
4,0	50	8	5,0	F40059-0408
5,0	50	10	6,0	F40059-0510
6,0	60	12	8,0	F40059-0612
8,0	70	16	10,0	F40059-0816
10,0	70	18	12,0	F40059-1018
12,0	70	20	12,0	F40059-1220
16,0	80	26	16,0	F40059-1626
20,0	100	32	20,0	F40059-2032



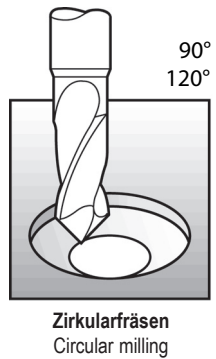
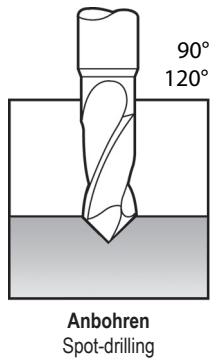
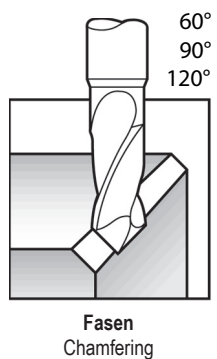
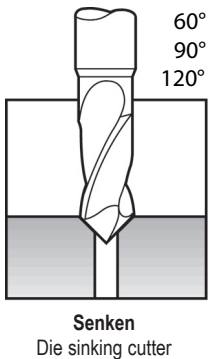
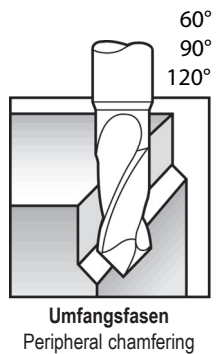
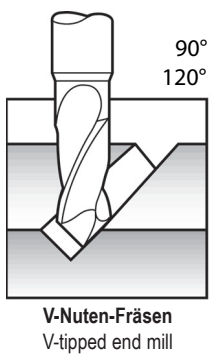
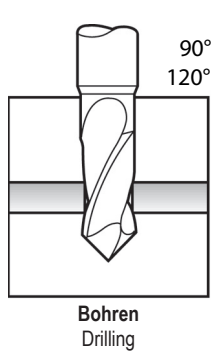
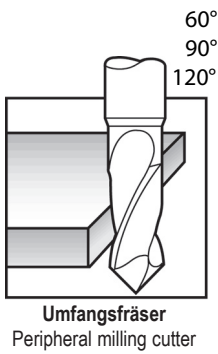
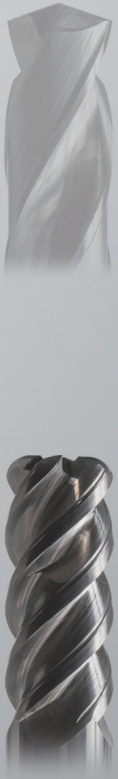
UNI **BLANK**

D1	L1	L2	D2	CODE
3,0	50	6	4,0	F40060-0306
4,0	50	8	5,0	F40060-0408
5,0	50	10	6,0	F40060-0510
6,0	60	12	8,0	F40060-0612
8,0	70	16	10,0	F40060-0816
10,0	70	18	12,0	F40060-1018
12,0	70	20	12,0	F40060-1220
16,0	80	26	16,0	F40060-1626
20,0	100	32	20,0	F40060-2032



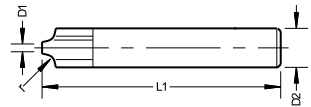
UNI **BLANK**

D1	L1	L2	D2	CODE
3,0	50	6	4,0	F40061-0306
4,0	50	8	5,0	F40061-0408
5,0	50	10	6,0	F40061-0510
6,0	60	12	8,0	F40061-0612
8,0	70	16	10,0	F40061-0816
10,0	70	18	12,0	F40061-1018
12,0	70	20	12,0	F40061-1220
16,0	80	26	16,0	F40061-1626
20,0	100	32	20,0	F40061-2032



VHM Viertelrund-Profilfräser

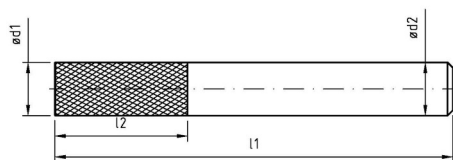
Solid carbide corner rounding cutter



<div> <div>Z=4</div> <div>DIN 6535 HA</div> </div>					
UNI		BLANK		TiALN	
r	L1	D1	D2	CODE	CODE
0,50	70	7	8,0	F40062-00570	F40063-00570
1,00	70	6	8,0	F40062-0170	F40063-0170
1,50	75	7	10,0	F40062-01575	F40063-01575
2,00	75	6	10,0	F40062-0275	F40063-0275
2,50	75	7	12,0	F40062-02575	F40063-02575
3,00	75	6	12,0	F40062-0375	F40063-0375
3,50	80	10	16,0	F40062-03580	F40063-03580
4,00	80	8	16,0	F40062-0480	F40063-0480
4,50	80	7	16,0	F40062-04580	F40063-04580
5,00	80	10	20,0	F40062-0580	F40063-0580
6,00	80	8	20,0	F40062-0680	F40063-0680

VHM Vielzahnfräser - mittlere Verzahnung, ziehende Schneide

Solid carbide multi tooth cutter - medium tooth, pulling cutting egde

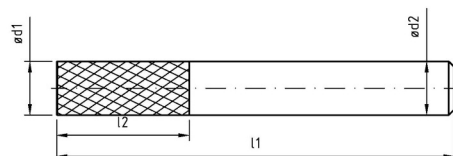


VHM **DIN 6535** **HA** **Vielzahn/ Multiple** **CFK/GFK > 40 %** **180°** **Fräser Ø 4 – 20 mm**
UNI **BLANK**

d1	d2	l1	l2	z	CODE
4	4	50	16	Vielzahn / Multiple	F40701-0405016
5	5	50	16	Vielzahn / Multiple	F40701-0505016
5	5	75	16	Vielzahn / Multiple	F40701-0507516
6	6	60	19	Vielzahn / Multiple	F40701-0606019
6	6	75	30	Vielzahn / Multiple	F40701-0607530
8	8	63	25	Vielzahn / Multiple	F40701-0806325
8	8	75	35	Vielzahn / Multiple	F40701-0807535
10	10	72	25	Vielzahn / Multiple	F40701-1007225
12	12	83	32	Vielzahn / Multiple	F40701-1208332
16	16	92	36	Vielzahn / Multiple	F40701-1609236
20	20	104	45	Vielzahn / Multiple	F40701-2010445

VHM Vielzahnfräser - grobe Verzahnung, ziehende Schneide

Solid carbide multi tooth cutters - coarse tooth, pulling cutting egde

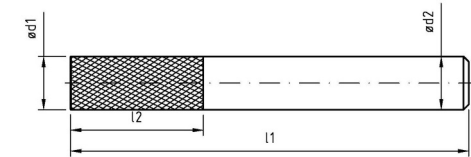


VHM **DIN 6535** **HA** **Vielzahn/ Multiple** **CFK/GFK < 40 %** **180°** **Fräser Ø 4 – 20 mm**
UNI **BLANK**

d1	d2	l1	l2	z	CODE
4	4	50	16	Vielzahn / Multiple	F40702-0405016
5	5	50	16	Vielzahn / Multiple	F40702-0505016
5	5	75	16	Vielzahn / Multiple	F40702-0507516
6	6	60	19	Vielzahn / Multiple	F40702-0606019
6	6	75	30	Vielzahn / Multiple	F40702-0607530
8	8	63	25	Vielzahn / Multiple	F40702-0806325
8	8	75	35	Vielzahn / Multiple	F40702-0807535
10	10	72	25	Vielzahn / Multiple	F40702-1007225
12	12	83	32	Vielzahn / Multiple	F40702-1208332
16	16	92	36	Vielzahn / Multiple	F40702-1609236
20	20	104	45	Vielzahn / Multiple	F40702-2010445

VHM Vielzahnfräser - mittlere Verzahnung, schiebende Schneide


Solid carbide multi tooth cutter - medium tooth, pushing cutting egde



VHM

DIN 6535

HA



Vielzahn/
Multiple

CFK/GFK
> 40 %

180°

Fräser Ø
4 – 10 mm

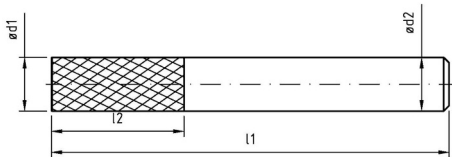
UNI


BLANK

d1	d2	l1	l2	z	CODE
4	4	50	16	Vielzahn / Multiple	F40703-0405016
5	5	50	16	Vielzahn / Multiple	F40703-0505016
6	6	60	19	Vielzahn / Multiple	F40703-0606019
10	10	72	25	Vielzahn / Multiple	F40703-1007225

VHM Vielzahnfräser - grobe Verzahnung, schiebende Schneide

Solid carbide multi tooth cutter - coarse tooth, pushing cutting egde

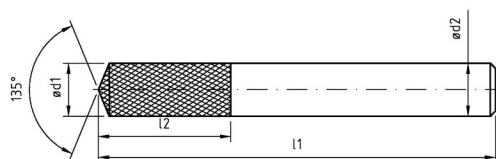


VHM	DIN 6535 HA		Vielzahn/ Multiple	CFK/GFK < 40 %	180°	Fräser Ø 4 – 10 mm
UNI	BLANK					
d1	d2	l1	l2	z	CODE	
4	4	50	16	Vielzahn / Multiple	F40704-0405016	
5	5	50	16	Vielzahn / Multiple	F40704-0505016	
6	6	60	19	Vielzahn / Multiple	F40704-0606019	
10	10	72	25	Vielzahn / Multiple	F40704-1007225	



VHM Vielzahnfräser - mittlere Verzahnung, Ausführung mit Bohrspitze, ziehende Schneide

Solid carbide multi tooth cutter - medium tooth, design with drill point design, pulling cutting egde



VHM

DIN 6535
HA

Vielzahn/
Multiple

CFK/GFK
> 40 %

135°
Bohrspitze/
drill point

Fräser Ø
4 – 20 mm

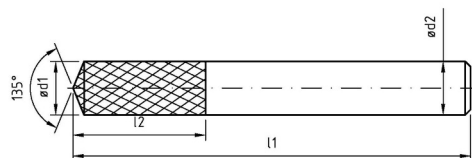
UNI

BLANK

d1	d2	l1	l2	z	CODE
4	4	50	16	Vielzahn / Multiple	F40711-0405016
5	5	50	16	Vielzahn / Multiple	F40711-0505016
5	5	75	16	Vielzahn / Multiple	F40711-0507516
6	6	60	19	Vielzahn / Multiple	F40711-0606019
6	6	75	30	Vielzahn / Multiple	F40711-0607530
8	8	60	25	Vielzahn / Multiple	F40711-0806025
8	8	75	35	Vielzahn / Multiple	F40711-0807535
10	10	72	30	Vielzahn / Multiple	F40711-1007230
12	12	83	32	Vielzahn / Multiple	F40711-1208332
16	16	92	36	Vielzahn / Multiple	F40711-1609236
20	20	104	45	Vielzahn / Multiple	F40711-2010445

VHM Vielzahnfräser - grobe Verzahnung, Ausführung mit Bohrspitze, ziehende Schneide

Solid carbide multi tooth cutter - coarse tooth, design with drill point design, pulling cutting egde



VHM

DIN 6535
HA

Vielzahn/
Multiple

CFK/GFK
< 40 %

135°
Bohrspitze/
drill point

Fräser Ø
4 – 20 mm

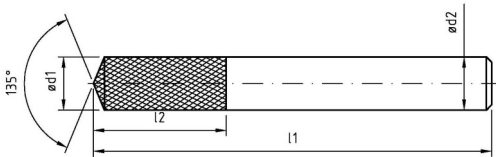
UNI

BLANK

d1	d2	l1	l2	z	CODE
4	4	50	16	Vielzahn / Multiple	F40712-0405016
5	5	50	16	Vielzahn / Multiple	F40712-0505016
5	5	75	16	Vielzahn / Multiple	F40712-0507516
6	6	60	19	Vielzahn / Multiple	F40712-0606019
6	6	75	30	Vielzahn / Multiple	F40712-0607530
8	8	60	25	Vielzahn / Multiple	F40712-0806025
8	8	75	35	Vielzahn / Multiple	F40712-0807535
10	10	72	30	Vielzahn / Multiple	F40712-1007230
12	12	83	32	Vielzahn / Multiple	F40712-1208332
16	16	92	36	Vielzahn / Multiple	F40712-1609236
20	20	104	45	Vielzahn / Multiple	F40712-2010445

VHM Vielzahnfräser - mittlere Verzahnung, Ausführung mit Bohrspitze, schiebende Schneide


Solid carbide multi tooth cutter - medium tooth, design with drill point, pushing cutting egde



VHM

DIN 6535

HA



Vielzahn/
Multiple

CFK/GFK
> 40 %

135°

Bohrspitze/
drill point

Fräser Ø
4 – 10 mm

UNI

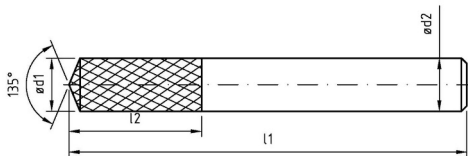
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
d1	d2	l1	l2	z	CODE
4	4	50	16	Vielzahn / Multiple	F40713-0405016
5	5	50	16	Vielzahn / Multiple	F40713-0505016
6	6	60	19	Vielzahn / Multiple	F40713-0606019
10	10	72	25	Vielzahn / Multiple	F40713-1007225



VHM Vielzahnfräser - grobe Verzahnung, Ausführung mit Bohrspitze schiebende Schneide

Solid carbide multi tooth cutter - coarse tooth, design with drill point design, pushing cutting egde

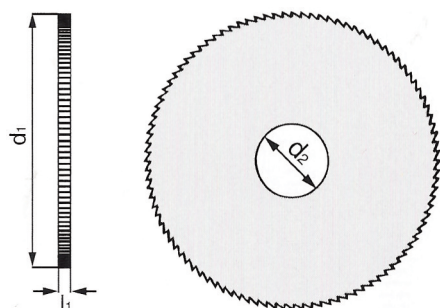


VHM	DIN 6535 HA		Vielzahn/ Multiple	CFK/GFK < 40 %	135° Bohrspitze/ drill point	Fräser Ø 4 – 10 mm
UNI	BLANK					
d1	d2	l1	l2	z	CODE	
4	4	50	16	Vielzahn / Multiple	F40714-0405016	
5	5	50	16	Vielzahn / Multiple	F40714-0505016	
6	6	60	19	Vielzahn / Multiple	F40714-0606019	
10	10	72	25	Vielzahn / Multiple	F40714-1007225	



Kreissägeblätter aus Vollhartmetall nach DIN 1837 und DIN 1838

Solid carbide slitting saws according to DIN 1837 and DIN 1838


VHM
**DIN
1837**
UNI
**DIN
1838**

d1	l1	d2	Z	CODE	Z	CODE
20,0	0,20	5	80	F40099-0200020	32	F40100-0200020
20,0	0,25	5	64	F40099-0200025	32	F40100-0200025
20,0	0,30	5	64	F40099-0200030	32	F40100-0200030
20,0	0,35	5	64	F40099-0200035	32	F40100-0200035
20,0	0,40	5	64	F40099-0200040	32	F40100-0200040
20,0	0,50	5	48	F40099-0200050	24	F40100-0200050
20,0	0,60	5	48	F40099-0200060	24	F40100-0200060
20,0	0,70	5	48	F40099-0200070	24	F40100-0200070
20,0	0,80	5	40	F40099-0200080	24	F40100-0200080
20,0	0,90	5	40	F40099-0200090	20	F40100-0200090
20,0	1,00	5	40	F40099-0200100	20	F40100-0200100
20,0	1,10	5	40	F40099-0200110	20	F40100-0200110
20,0	1,20	5	40	F40099-0200120	20	F40100-0200120
20,0	1,30	5	40	F40099-0200130	20	F40100-0200130
20,0	1,40	5	40	F40099-0200140	20	F40100-0200140
20,0	1,50	5	40	F40099-0200150	20	F40100-0200150
20,0	1,60	5	40	F40099-0200160	20	F40100-0200160
20,0	1,70	5	32	F40099-0200170	20	F40100-0200170
20,0	1,80	5	32	F40099-0200180	16	F40100-0200180
20,0	1,90	5	32	F40099-0200190	16	F40100-0200190
20,0	2,00	5	32	F40099-0200200	16	F40100-0200200
20,0	2,50	5	32	F40099-0200250	16	F40100-0200250
20,0	3,00	5	32	F40099-0200300	16	F40100-0200300
20,0	4,00	5	24	F40099-0200400	16	F40100-0200400
20,0	5,00	5	24	F40099-0200500	16	F40100-0200500
20,0	6,00	5	24	F40099-0200600	16	F40100-0200600
25,0	0,20	8	80	F40099-0250020	32	F40100-0250020
25,0	0,25	8	80	F40099-0250025	32	F40100-0250025
25,0	0,30	8	80	F40099-0250030	32	F40100-0250030
25,0	0,35	8	64	F40099-0250035	32	F40100-0250035
25,0	0,40	8	64	F40099-0250040	32	F40100-0250040
25,0	0,50	8	64	F40099-0250050	24	F40100-0250050
25,0	0,60	8	64	F40099-0250060	24	F40100-0250060
25,0	0,70	8	48	F40099-0250070	24	F40100-0250070
25,0	0,80	8	48	F40099-0250080	24	F40100-0250080
25,0	0,90	8	48	F40099-0250090	20	F40100-0250090
25,0	1,00	8	48	F40099-0250100	20	F40100-0250100
25,0	1,10	8	48	F40099-0250110	20	F40100-0250110
25,0	1,20	8	48	F40099-0250120	20	F40100-0250120
25,0	1,30	8	40	F40099-0250130	20	F40100-0250130
25,0	1,40	8	40	F40099-0250140	20	F40100-0250140
25,0	1,50	8	40	F40099-0250150	20	F40100-0250150
25,0	1,60	8	40	F40099-0250160	20	F40100-0250160
25,0	1,70	8	40	F40099-0250170	20	F40100-0250170
25,0	1,80	8	40	F40099-0250180	16	F40100-0250180

VHM

UNI

 DIN
1837

 DIN
1838

d1	l1	d2	Z	CODE	Z	CODE
25,0	1,90	8	40	F40099-0250190	16	F40100-0250190
25,0	2,00	8	40	F40099-0250200	16	F40100-0250200
25,0	2,50	8	40	F40099-0250250	16	F40100-0250250
25,0	3,00	8	32	F40099-0250300	16	F40100-0250300
25,0	4,00	8	32	F40099-0250400	16	F40100-0250400
25,0	5,00	8	32	F40099-0250500	16	F40100-0250500
25,0	6,00	8	32	F40099-0250600	16	F40100-0250600
32,0	0,20	8	100	F40099-0320020	32	F40100-0320020
32,0	0,25	8	100	F40099-0320025	32	F40100-0320025
32,0	0,30	8	80	F40099-0320030	32	F40100-0320030
32,0	0,35	8	80	F40099-0320035	32	F40100-0320035
32,0	0,40	8	80	F40099-0320040	32	F40100-0320040
32,0	0,50	8	80	F40099-0320050	24	F40100-0320050
32,0	0,60	8	64	F40099-0320060	24	F40100-0320060
32,0	0,70	8	64	F40099-0320070	24	F40100-0320070
32,0	0,80	8	64	F40099-0320080	24	F40100-0320080
32,0	0,90	8	64	F40099-0320090	24	F40100-0320090
32,0	1,00	8	64	F40099-0320100	24	F40100-0320100
32,0	1,10	8	48	F40099-0320110	24	F40100-0320110
32,0	1,20	8	48	F40099-0320120	24	F40100-0320120
32,0	1,30	8	48	F40099-0320130	20	F40100-0320130
32,0	1,40	8	48	F40099-0320140	20	F40100-0320140
32,0	1,50	8	48	F40099-0320150	20	F40100-0320150
32,0	1,60	8	48	F40099-0320160	20	F40100-0320160
32,0	1,70	8	48	F40099-0320170	20	F40100-0320170
32,0	1,80	8	48	F40099-0320180	20	F40100-0320180
32,0	1,90	8	48	F40099-0320190	20	F40100-0320190
32,0	2,00	8	48	F40099-0320200	20	F40100-0320200
32,0	2,50	8	40	F40099-0320250	20	F40100-0320250
32,0	3,00	8	40	F40099-0320300	20	F40100-0320300
32,0	4,00	8	40	F40099-0320400	18	F40100-0320400
32,0	5,00	8	32	F40099-0320500	18	F40100-0320500
32,0	6,00	8	32	F40099-0320600	18	F40100-0320600
40,0	0,20	10	128	F40099-0400020	48	F40100-0400020
40,0	0,25	10	100	F40099-0400025	48	F40100-0400025
40,0	0,30	10	100	F40099-0400030	48	F40100-0400030
40,0	0,35	10	100	F40099-0400035	48	F40100-0400035
40,0	0,40	10	100	F40099-0400040	48	F40100-0400040
40,0	0,50	10	80	F40099-0400050	40	F40100-0400050
40,0	0,60	10	80	F40099-0400060	40	F40100-0400060
40,0	0,70	10	80	F40099-0400070	40	F40100-0400070
40,0	0,80	10	80	F40099-0400080	40	F40100-0400080
40,0	0,90	10	64	F40099-0400090	32	F40100-0400090
40,0	1,00	10	64	F40099-0400100	32	F40100-0400100
40,0	1,10	10	64	F40099-0400110	32	F40100-0400110



d1	l1	d2	Z	CODE	Z	CODE
40,0	1,20	10	64	F40099-0400120	32	F40100-0400120
40,0	1,30	10	64	F40099-0400130	32	F40100-0400130
40,0	1,40	10	64	F40099-0400140	32	F40100-0400140
40,0	1,50	10	64	F40099-0400150	32	F40100-0400150
40,0	1,60	10	64	F40099-0400160	32	F40100-0400160
40,0	1,70	10	48	F40099-0400170	32	F40100-0400170
40,0	1,80	10	48	F40099-0400180	24	F40100-0400180
40,0	1,90	10	48	F40099-0400190	24	F40100-0400190
40,0	2,00	10	48	F40099-0400200	24	F40100-0400200
40,0	2,50	10	48	F40099-0400250	24	F40100-0400250
40,0	3,00	10	48	F40099-0400300	24	F40100-0400300
40,0	4,00	10	40	F40099-0400400	20	F40100-0400400
40,0	5,00	10	40	F40099-0400500	20	F40100-0400500
40,0	6,00	10	40	F40099-0400600	20	F40100-0400600
50,0	0,20	13	128	F40099-0500020	48	F40100-0500020
50,0	0,25	13	128	F40099-0500025	48	F40100-0500025
50,0	0,30	13	128	F40099-0500030	48	F40100-0500030
50,0	0,35	13	100	F40099-0500035	48	F40100-0500035
50,0	0,40	13	100	F40099-0500040	48	F40100-0500040
50,0	0,50	13	100	F40099-0500050	48	F40100-0500050
50,0	0,60	13	100	F40099-0500060	48	F40100-0500060
50,0	0,70	13	80	F40099-0500070	40	F40100-0500070
50,0	0,80	13	80	F40099-0500080	40	F40100-0500080
50,0	0,90	13	80	F40099-0500090	40	F40100-0500090
50,0	1,00	13	80	F40099-0500100	40	F40100-0500100
50,0	1,10	13	80	F40099-0500110	40	F40100-0500110
50,0	1,20	13	80	F40099-0500120	40	F40100-0500120
50,0	1,30	13	64	F40099-0500130	32	F40100-0500130
50,0	1,40	13	64	F40099-0500140	32	F40100-0500140
50,0	1,50	13	64	F40099-0500150	32	F40100-0500150
50,0	1,60	13	64	F40099-0500160	32	F40100-0500160
50,0	1,70	13	64	F40099-0500170	32	F40100-0500170
50,0	1,80	13	64	F40099-0500180	32	F40100-0500180
50,0	1,90	13	64	F40099-0500190	32	F40100-0500190
50,0	2,00	13	64	F40099-0500200	32	F40100-0500200
50,0	2,50	13	64	F40099-0500250	32	F40100-0500250
50,0	3,00	13	48	F40099-0500300	24	F40100-0500300
50,0	4,00	13	48	F40099-0500400	24	F40100-0500400
50,0	5,00	13	48	F40099-0500500	24	F40100-0500500
50,0	6,00	13	40	F40099-0500600	20	F40100-0500600
63,0	0,20	16	160	F40099-0630020	64	F40100-0630020
63,0	0,25	16	128	F40099-0630025	64	F40100-0630025
63,0	0,30	16	128	F40099-0630030	64	F40100-0630030
63,0	0,35	16	128	F40099-0630035	64	F40100-0630035
63,0	0,40	16	128	F40099-0630040	64	F40100-0630040

VHM
UNI
**DIN
1837**
**DIN
1838**

d1	l1	d2	Z	CODE	Z	CODE
63,0	0,50	16	128	F40099-0630050	64	F40100-0630050
63,0	0,60	16	100	F40099-0630060	48	F40100-0630060
63,0	0,70	16	100	F40099-0630070	48	F40100-0630070
63,0	0,80	16	100	F40099-0630080	48	F40100-0630080
63,0	0,90	16	100	F40099-0630090	48	F40100-0630090
63,0	1,00	16	100	F40099-0630100	48	F40100-0630100
63,0	1,10	16	80	F40099-0630110	40	F40100-0630110
63,0	1,20	16	80	F40099-0630120	40	F40100-0630120
63,0	1,30	16	80	F40099-0630130	40	F40100-0630130
63,0	1,40	16	80	F40099-0630140	40	F40100-0630140
63,0	1,50	16	80	F40099-0630150	40	F40100-0630150
63,0	1,60	16	80	F40099-0630160	40	F40100-0630160
63,0	1,70	16	80	F40099-0630170	40	F40100-0630170
63,0	1,80	16	80	F40099-0630180	40	F40100-0630180
63,0	1,90	16	80	F40099-0630190	40	F40100-0630190
63,0	2,00	16	80	F40099-0630200	40	F40100-0630200
63,0	2,50	16	64	F40099-0630250	32	F40100-0630250
63,0	3,00	16	64	F40099-0630300	32	F40100-0630300
63,0	4,00	16	64	F40099-0630400	32	F40100-0630400
63,0	5,00	16	48	F40099-0630500	24	F40100-0630500
63,0	6,00	16	84	F40099-0630600	24	F40100-0630600
80,0	0,40	22	160	F40099-0800040	64	F40100-0800040
80,0	0,50	22	128	F40099-0800050	64	F40100-0800050
80,0	0,60	22	128	F40099-0800060	64	F40100-0800060
80,0	0,70	22	128	F40099-0800070	64	F40100-0800070
80,0	0,80	22	128	F40099-0800080	64	F40100-0800080
80,0	0,90	22	100	F40099-0800090	48	F40100-0800090
80,0	1,00	22	100	F40099-0800100	48	F40100-0800100
80,0	1,10	22	100	F40099-0800110	48	F40100-0800110
80,0	1,20	22	100	F40099-0800120	48	F40100-0800120
80,0	1,30	22	100	F40099-0800130	48	F40100-0800130
80,0	1,40	22	100	F40099-0800140	48	F40100-0800140
80,0	1,50	22	100	F40099-0800150	48	F40100-0800150
80,0	1,60	22	100	F40099-0800160	48	F40100-0800160
80,0	1,70	22	80	F40099-0800170	40	F40100-0800170
80,0	1,80	22	80	F40099-0800180	40	F40100-0800180
80,0	1,90	22	80	F40099-0800190	40	F40100-0800190
80,0	2,00	22	80	F40099-0800200	40	F40100-0800200
80,0	2,50	22	80	F40099-0800250	40	F40100-0800250
80,0	3,00	22	80	F40099-0800300	40	F40100-0800300
80,0	4,00	22	64	F40099-0800400	32	F40100-0800400
80,0	5,00	22	64	F40099-0800500	32	F40100-0800500
80,0	6,00	22	64	F40099-0800600	32	F40100-0800600
100,0	0,50	22	160	F40099-1000050	80	F40100-1000050
100,0	0,60	22	160	F40099-1000060	80	F40100-1000060



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d1	l1	d2	Z	CODE	Z	CODE
100,0	0,70	22	128	F40099-1000070	64	F40100-1000070
100,0	0,80	22	128	F40099-1000080	64	F40100-1000080
100,0	0,90	22	128	F40099-1000090	64	F40100-1000090
100,0	1,00	22	128	F40099-1000100	64	F40100-1000100
100,0	1,10	22	128	F40099-1000110	64	F40100-1000110
100,0	1,20	22	128	F40099-1000120	64	F40100-1000120
100,0	1,30	22	100	F40099-1000130	48	F40100-1000130
100,0	1,40	22	100	F40099-1000140	48	F40100-1000140
100,0	1,50	22	100	F40099-1000150	48	F40100-1000150
100,0	1,60	22	100	F40099-1000160	48	F40100-1000160
100,0	1,70	22	100	F40099-1000170	48	F40100-1000170
100,0	1,80	22	100	F40099-1000180	48	F40100-1000180
100,0	1,90	22	100	F40099-1000190	48	F40100-1000190
100,0	2,00	22	100	F40099-1000200	48	F40100-1000200
100,0	2,50	22	100	F40099-1000250	48	F40100-1000250
100,0	3,00	22	80	F40099-1000300	40	F40100-1000300
100,0	4,00	22	80	F40099-1000400	40	F40100-1000400
100,0	5,00	22	80	F40099-1000500	40	F40100-1000500
100,0	6,00	22	64	F40099-1000600	32	F40100-1000600
125,0	0,60	22	160	F40099-1250060	80	F40100-1250060
125,0	0,70	22	160	F40099-1250070	80	F40100-1250070
125,0	0,80	22	160	F40099-1250080	80	F40100-1250080
125,0	0,90	22	160	F40099-1250090	80	F40100-1250090
125,0	1,00	22	160	F40099-1250100	80	F40100-1250100
125,0	1,10	22	128	F40099-1250110	64	F40100-1250110
125,0	1,20	22	128	F40099-1250120	64	F40100-1250120
125,0	1,30	22	128	F40099-1250130	64	F40100-1250130
125,0	1,40	22	128	F40099-1250140	64	F40100-1250140
125,0	1,50	22	128	F40099-1250150	64	F40100-1250150
125,0	1,60	22	128	F40099-1250160	64	F40100-1250160
125,0	1,70	22	128	F40099-1250170	64	F40100-1250170
125,0	1,80	22	128	F40099-1250180	64	F40100-1250180
125,0	1,90	22	128	F40099-1250190	64	F40100-1250190
125,0	2,00	22	128	F40099-1250200	64	F40100-1250200
125,0	2,50	22	100	F40099-1250250	48	F40100-1250250
125,0	3,00	22	100	F40099-1250300	48	F40100-1250300
125,0	4,00	22	100	F40099-1250400	48	F40100-1250400
125,0	5,00	22	80	F40099-1250500	40	F40100-1250500
125,0	6,00	22	80	F40099-1250600	40	F40100-1250600
150,0	1,00	32	150	F40099-1500100	80	F40100-1500100
150,0	1,20	32	150	F40099-1500120	80	F40100-1500120
150,0	1,50	32	150	F40099-1500150	80	F40100-1500150
150,0	1,60	32	150	F40099-1500160	64	F40100-1500160
150,0	2,00	32	128	F40099-1500200	64	F40100-1500200
150,0	2,50	32	128	F40099-1500250	64	F40100-1500250

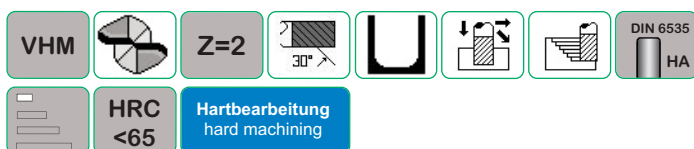
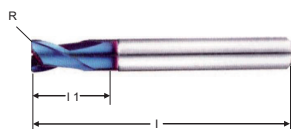
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d1	l1	d2	Z	CODE	Z	CODE
150,0	3,00	32	128	F40099-1500300	64	F40100-1500300
150,0	4,00	32	100	F40099-1500400	48	F40100-1500400
160,0	1,00	32	160	F40099-1600100	80	F40100-1600100
160,0	1,20	32	160	F40099-1600120	80	F40100-1600120
160,0	1,50	32	160	F40099-1600150	80	F40100-1600150
160,0	1,60	32	160	F40099-1600160	80	F40100-1600160
160,0	2,00	32	128	F40099-1600200	64	F40100-1600200
160,0	2,50	32	128	F40099-1600250	64	F40100-1600250
160,0	3,00	32	128	F40099-1600300	80	F40100-1600300
160,0	4,00	32	128	F40099-1600400	80	F40100-1600400
200,0	1,50	32	160	F40099-2000150	80	F40100-2000150
200,0	2,00	32	160	F40099-2000200	80	F40100-2000200
200,0	2,50	32	160	F40099-2000250	80	F40100-2000250
200,0	3,00	32	128	F40099-2000300	64	F40100-2000300
200,0	4,00	32	128	F40099-2000400	64	F40100-2000400



VHM Torus Schaftfräser

Solid carbide torus cutter



TiALN

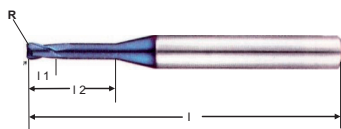
D1 h10	d2	l	l1	R	R	R	CODE
0,5	3,0	38	2,0	0,15			F40215-0050020
0,8	3,0	38	3,0	0,15			F40215-0080030
1,0	3,0	38	3,0	0,20			F40215-0100030
1,2	3,0	38	4,0	0,20			F40215-0120040
1,5	3,0	38	5,0	0,20	0,30		F40215-0150050
2,0	3,0	38	7,0	0,20	0,50		F40215-0200070
2,5	3,0	38	8,0	0,20	0,50		F40215-0250080
3,0	3,0	38	10,0	0,20	0,50		F40215-0300010
4,0	4,0	40	10,0	0,30	0,50	1	F40215-0400010
5,0	5,0	50	12,0	0,30	0,50	1	F40215-0500120
6,0	6,0	50	14,0	0,30	0,50	1	F40215-0600140
8,0	8,0	60	18,0		0,50	1	F40215-0800180
10,0	10,0	60	20,0		0,50	1	F40215-1000030
12,0	12,0	65	25,0		0,50	1	F40215-1200025



D1 h10	d2	l	l1	R	R	R	CODE
1,0	3,0	38	3,0	0,20			F40216-0100030
1,2	3,0	38	4,0	0,20			F40216-0120040
1,5	3,0	38	5,0	0,20	0,30		F40216-0150050
2,0	3,0	38	7,0	0,20	0,50		F40216-0200070
2,5	3,0	38	8,0	0,20	0,50		F40216-0250080
3,0	3,0	38	10,0	0,20	0,50		F40216-0300100
4,0	4,0	40	10,0	0,30	0,50	1	F40216-0400100
5,0	5,0	50	12,0	0,30	0,50	1	F40216-0500120
6,0	6,0	50	14,0	0,30	0,50	1	F40216-0600140
8,0	8,0	60	18,0		0,50	1	F40216-0800180
10,0	10,0	60	20,0		0,50	1	F40216-1000200
12,0	12,0	65	25,0		0,50	1	F40216-1200250

VHM Torus Kopierfräser

Solid carbide torus copy cutter



D1 h10	d3	d2	l	l1	l2	R	CODE
0,5	0,48	3,0	40	1,0	8	0,15	F40217-0050080
0,6	0,58	3,0	40	1,0	8	0,15	F40217-0060080
0,8	0,78	3,0	40	1,2	8	0,2	F40217-0080080
1,0	0,98	3,0	40	2,0	10	0,2	F40217-0100100
1,2	1,10	3,0	40	2,0	10	0,2	F40217-0120100
1,5	1,40	3,0	50	2,5	12	0,3	F40217-0150120
2,0	1,80	3,0	50	3,0	14	0,3	F40217-0200140
2,5	2,30	3,0	50	4,0	14	0,3	F40217-0250140
3,0	2,80	3,0	50	5,0	16	0,3	F40217-0300160
4,0	3,80	4,0	65	7,0	20	0,3	F40217-0400200
5,0	5,40	6,0	65	8,0	25	1,0	F40217-0500250
6,0	5,80	6,0	65	10,0	25	1,0	F40217-0600250
8,0	7,80	8,0	65	10,0	32	2,0	F40217-0800320
10,0	9,60	10,0	72	15,0	32	2,0	F40217-1000320
12,0	11,60	12,0	83	15,0	38	2,0	F40217-1200380

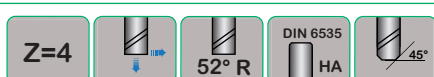
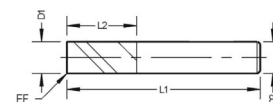


D1 h10	d3	d2	l	l1	l2	R	CODE
0,5	0,48	3,0	40	1	8	0,15	F40218-0050080
0,6	0,58	3,0	40	1	8	0,15	F40218-0060080
0,8	0,78	3,0	40	1,2	8	0,2	F40218-0080080
1,0	0,98	3,0	40	2	10	0,2	F40218-0100100
1,2	1,10	3,0	40	2	10	0,2	F40218-0120100
1,5	1,40	3,0	50	2,5	12	0,3	F40218-0150120
2,0	1,80	3,0	50	3	14	0,3	F40218-0200140
2,5	2,30	3,0	50	4	14	0,3	F40218-0250140
3,0	2,80	3,0	50	5	16	0,3	F40218-0300160
4,0	3,80	4,0	65	7	20	0,3	F40218-0400200
5,0	5,40	6,0	65	8	25	1,0	F40218-0500250
6,0	5,80	6,0	65	10	25	1,0	F40218-0600250
8,00	7,80	8,0	65	10	32	2,0	F40218-0800320
10,00	9,60	10,0	72	15	32	2,0	F40218-1000320
12,00	11,60	12,0	83	15	38	2,0	F40218-1200380



VHM Schaftfräser – kurz, lang, extralang, bis 50 HRC

Solid carbide end mill – short, long, extra long, up to 50 HRC



nACo HRC bis 50 Hartbearbeitung hard machining



D1 h9	L1	L2	D2 h6	EF	CODE
4,00	54	8	6,0	0,05 x 45°	F40028-0408
5,00	54	9	6,0	0,05 x 45°	F40028-0509
6,00	54	10	6,0	0,05 x 45°	F40028-0610
8,00	58	12	8,0	0,1 x 45°	F40028-0812
10,00	66	14	10,0	0,1 x 45°	F40028-1014
12,00	73	16	12,0	0,15 x 45°	F40028-1216
14,00	75	18	14,0	0,15 x 45°	F40028-1418
16,00	82	22	16,0	0,2 x 45°	F40028-1622
18,00	84	24	18,0	0,2 x 45°	F40028-1824
20,00	92	26	20,0	0,2 x 45°	F40028-2026



nACo HRC bis 50 Hartbearbeitung hard machining



D1 h9	L1	L2	D2 h6	EF	CODE
4,00	57	11	6,0	0,05 x 45°	F40029-0411
5,00	57	13	6,0	0,05 x 45°	F40029-0513
6,00	57	13	6,0	0,05 x 45°	F40029-0613
8,00	63	19	8,0	0,1 x 45°	F40029-0819
10,00	72	22	10,0	0,1 x 45°	F40029-1022
12,00	83	26	12,0	0,15 x 45°	F40029-1226
14,00	83	26	14,0	0,2 x 45°	F40029-1426
16,00	92	32	16,0	0,2 x 45°	F40029-1632
18,00	92	32	18,0	0,2 x 45°	F40029-1832
20,00	104	38	20,0	0,2 x 45°	F40029-2038



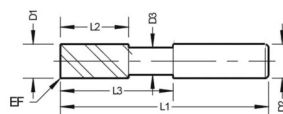
nACo HRC bis 50 Hartbearbeitung hard machining













D1 h9	L1	L2	D2 h6	EF	CODE
4,00	62	16	6,0	0,05 x 45°	F40136-0416
5,00	62	17	6,0	0,05 x 45°	F40136-0517
6,00	62	18	6,0	0,05 x 45°	F40136-0618
8,00	68	24	8,0	0,1 x 45°	F40136-0824
10,00	80	30	10,0	0,1 x 45°	F40136-1030
12,00	93	36	12,0	0,15 x 45°	F40136-1236
14,00	99	42	14,0	0,15 x 45°	F40136-1442
16,00	108	48	16,0	0,2 x 45°	F40136-1648
18,00	114	54	18,0	0,2 x 45°	F40136-1854
20,00	126	60	20,0	0,2 x 45°	F40136-2060

VHM Hochleistungs-Schafffräser – lang, extra lang von 48 bis 54 HRC

Solid carbide high performance end mill – long, extra long from 48 to 54 HRC



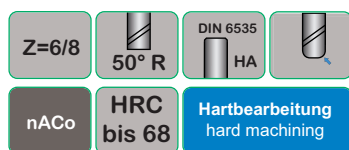
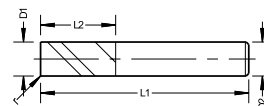
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D1 h9	L1	L2	D2 h6	D3 x L3	EF	CODE
6,00	58	7	6,0	5,8 x 20	0,05 x 45°	F40137-0607
8,00	63	9	8,0	7,8 x 25	0,1 x 45°	F40137-0863
10,00	72	11	10,0	9,7 x 30	0,1 x 45°	F40137-1011
12,00	83	13	12,0	11,7 x 35	0,15 x 45°	F40137-1213
16,00	93	17	16,0	15,7 x 45	0,2 x 45°	F40137-1617
20,00	105	21	20,0	19,7 x 55	0,2 x 45°	F40137-2021

<div> <div>Z=4</div> <div></div> <div></div> <div></div> <div></div> </div> <div> <div>nACo</div> <div>HRC 48-54</div> <div>Hartbearbeitung hard machining</div> </div> <div></div>						
D1 h9	L1	L2	D2 h6	D3 x L3	EF	CODE
6,00	70	7	6,0	5,8 x 30	0,05 x 45°	F40138-0607
8,00	80	9	8,0	7,8 x 40	0,1 x 45°	F40138-0809
10,00	84	11	10,0	9,7 x 45	0,1 x 45°	F40138-1011
12,00	97	13	12,0	11,7 x 50	0,15 x 45°	F40138-1213
16,00	115	17	16,0	15,7 x 65	0,2 x 45°	F40138-1617
20,00	130	21	20,0	19,7 x 80	0,2 x 45°	F40138-2021

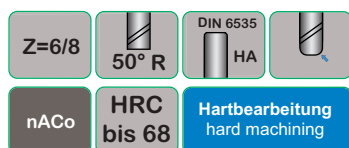


VHM Schaftfräser – lang, extra lang bis 68 HRC

Solid carbide end mill – long, extra long up to 68 HRC



D1 h9 / r	L1	L2	D2 h6	Z	CODE
5,00	57	13	6	6	F40033-0513
6,00	57	13	6	6	F40033-0613
6,00 / 1,0	57	13	6	6	F40033-0613/1,0
8,00	63	16	8	6	F40033-0816
8,00 / 1,0	63	16	8	6	F40033-0816/1,0
10,00	72	19	10	6	F40033-1019
10,00 / 1,5	72	19	10	6	F40033-1019/1,5
12,00	83	22	12	6	F40033-1222
12,00 / 1,5	83	22	12	6	F40033-1222/1,5
14,00	83	22	14	6	F40033-1422
16,00	92	26	16	8	F40033-1626
16,00 / 2,0	92	26	16	8	F40033-1626/2,0
18,00	92	26	18	8	F40033-1826
20,00	104	32	20	8	F40033-2032
20,00 / 2,0	104	32	20	8	F40033-2032/2,0
25,00	121	45	25	8	F40033-2545
25,00 / 2,5	121	45	25	8	F40033-2545/2,5



D1 h9 / r	L1	L2	D2 h6	Z	CODE
6,00	62	18	6	6	F40034-0618
6,00 / 1,0	62	18	6	6	F40034-06/1,0
8,00	68	24	8	6	F40034-0824
8,00 / 1,0	68	24	8	6	F40034-08/1,0
10,00	80	30	10	6	F40034-1030
10,00/1,5	80	30	10	6	F40034-10/1,5
12,00	93	36	12	6	F40034-1236
12,00 / 1,5	93	36	12	6	F40034-12/1,5
14,00	99	42	14	6	F40034-1442
16,00	108	48	16	8	F40034-1648
16,00 / 2,0	108	48	16	8	F40034-16/2,0
18,00	114	54	18	8	F40034-1854
20,00	126	60	20	8	F40034-2060
20,00 / 2,0	126	60	20	8	F40034-20/2,0
25,00	180	92	25	8	F40034-2592
25,00 / 2,5	180	92	25	8	F40034-2592/2,0

VHM Schruppfräser bis 54 HRC

Solid carbide roughing end mill up to 54 HRC

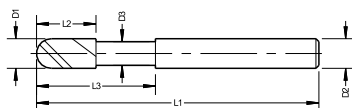
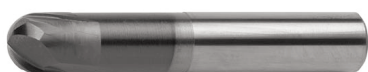


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D1	L1	L2	D2	CODE
6,00	57	16	6,0	F40041-0616
8,00	63	16	8,0	F40041-0816
10,00	72	22	10,0	F40041-1022
12,00	83	26	12,0	F40041-1226
16,00	92	32	16,0	F40041-1632
20,00	104	38	20,0	F40041-2038



VHM Radiusfräser bis 68 HRC

Solide carbide radius milling cutter up to 68 HRC



Z=2

20° R

DIN 6535 HA

R

nACo

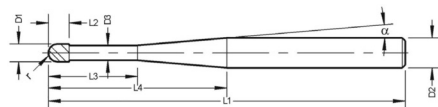
HRC bis 68

Hartbearbeitung
hard machining

D1 h9	L1	L2	D2 h6	D3 x L3	CODE
2,0	50	2,5	3,0	1,9 x 12,0	F40139-02025
2,0	60	4	3,0	1,9 x 20,0	F40139-0204
3,0	50	3	3,0	2,9 x 15,0	F40139-0303
3,0	60	6	3,0	2,9 x 20,0	F40139-0306
4,0	50	4	4,0	3,9 x 15,0	F40139-0404
4,0	60	8	4,0	3,9 x 20,0	F40139-0408
5,0	55	5	5,0	4,8 x 18,0	F40139-0505
5,0	70	10	5,0	4,8 x 23,0	F40139-0510
6,0	62	6	6,0	5,8 x 20,0	F40139-0606
6,0	80	12	6,0	5,8 x 25,0	F40139-0612
8,0	75	8	8,0	7,8 x 27,0	F40139-0808
8,0	100	14	8,0	7,8 x 35,0	F40139-0814
10,0	80	10	10,0	9,8 x 30,0	F40139-1010
10,0	110	18	10,0	9,8 x 40,0	F40139-1018
12,0	93	12	12,0	11,7 x 35,0	F40139-1212
12,0	110	22	12,0	11,7 x 45,0	F40139-1222
16,0	93	16	16,0	15,7 x 38,0	F40139-1616
16,0	125	28	16,0	15,7 x 50,0	F40139-1628

VHM Radiusfräser – kurz, lang, extra lang von 48 bis 54 HRC

Solid carbide radius milling cutter – short, long, extra long from 48 to 54 HRC

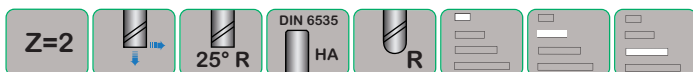
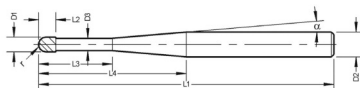


<div> <div>Z=2</div> <div></div> <div>30° R</div> <div>DIN 6535 HA</div> <div>R</div> <div></div> <div></div> <div></div> </div>							
HRC 48-54		Hartbearbeitung hard machining		nACo		nACRo	
D1 h9	r	L1	L2	D2 h6	D3 x L3 / α	CODE	CODE
2,0	1,0	45	3,0	4,0	1,9 x 6 / 15°	F40140-0203006	F40141-0203006
2,0	1,0	45	3,0	4,0	1,9 x 10 / 15°	F40140-0203010	F40141-0203010
2,0	1,0	55	3,0	4,0	1,9 x 15 / 15°	F40140-0203015	F40141-0203015
2,0	1,0	55	3,0	4,0	1,9 x 20 / 15°	F40140-0203020	F40141-0203020
3,0	1,5	45	4,5	6,0	2,9 x 6 / 20°	F40140-0304506	F40141-0304506
3,0	1,5	54	4,5	6,0	2,9 x 12 / 20°	F40140-0304512	F40141-0304512
3,0	1,5	58	4,5	6,0	2,9 x 18 / 20°	F40140-0304518	F40141-0304518
3,0	1,5	67	4,5	6,0	2,9 x 24 / 20°	F40140-0304524	F40141-0304524
4,0	2,0	58	6,0	6,0	3,9 x 8 / 15°	F40140-0400608	F40141-0400608
4,0	2,0	58	6,0	6,0	3,9 x 16 / 15°	F40140-0400616	F40141-0400616
4,0	2,0	67	6,0	6,0	3,9 x 24 / 15°	F40140-0400624	F40141-0400624
4,0	2,0	72	6,0	6,0	3,9 x 36 / 15°	F40140-0400636	F40141-0400636
6,0	3,0	60	8,0	6,0	5,9 x 16	F40140-0600816	F40141-0600816
6,0	3,0	70	8,0	6,0	5,9 x 25	F40140-0600825	F40141-0600825
6,0	3,0	70	8,0	6,0	5,9 x 35	F40140-0600835	F40141-0600835
6,0	3,0	80	8,0	6,0	5,9 x 45	F40140-0600845	F40141-0600845
8,0	4,0	70	10,0	8,0	7,8 x 25	F40140-0801025	F40141-0801025
8,0	4,0	80	10,0	8,0	7,8 x 40	F40140-0801040	F40141-0801040
8,0	4,0	100	10,0	8,0	7,8 x 60	F40140-0801060	F40141-0801060
10,0	5,0	75	12,0	10,0	9,8 x 30	F40140-1001230	F40141-1001230
10,0	5,0	100	12,0	10,0	9,8 x 60	F40140-1001260	F40141-1001260
10,0	5,0	120	12,0	10,0	9,8 x 80	F40140-1001280	F40141-1001280
12,0	6,0	90	14,0	12,0	11,8 x 45	F40140-1201445	F40141-1201445
12,0	6,0	135	14,0	12,0	11,8 x 90	F40140-1201490	F40141-1201490



VHM Radiusfräser – kurz, lang, extra lang von 54 bis 60 HRC

Solid carbide radius milling cutter – short, long, extra long from 54 to 60 HRC



HRC
54-60

Hartbearbeitung
hard machining

nACo

nACRo


D1 h9	r	L1	L2	D2 h6	D3 x L3 / a	CODE	CODE
2,0	1,0	45	3,0	4,0	1,9 x 6 / 15°	F40142-0203006	F40143-0203006
2,0	1,0	45	3,0	4,0	1,9 x 10 / 15°	F40142-0203010	F40143-0203010
2,0	1,0	55	3,0	4,0	1,9 x 15 / 15°	F40142-0203015	F40143-0203015
2,0	1,0	55	3,0	4,0	1,9 x 20 / 15°	F40142-0203020	F40143-0203020
3,0	1,5	45	4,5	6,0	2,9 x 6 / 20°	F40142-0304506	F40143-0304506
3,0	1,5	54	4,5	6,0	2,9 x 12 / 20°	F40142-0304512	F40143-0304512
3,0	1,5	58	4,5	6,0	2,9 x 18 / 20°	F40142-0304518	F40143-0304518
3,0	1,5	67	4,5	6,0	2,9 x 24 / 20°	F40142-0304524	F40143-0304524
4,0	2,0	58	6,0	6,0	3,9 x 8 / 15°	F40142-0400608	F40143-0400608
4,0	2,0	58	6,0	6,0	3,9 x 16 / 15°	F40142-0400616	F40143-0400616
4,0	2,0	67	6,0	6,0	3,9 x 24 / 15°	F40142-0400624	F40143-0400624
4,0	2,0	72	6,0	6,0	3,9 x 36 / 15°	F40142-0400636	F40143-0400636
6,0	3,0	60	8,0	6,0	5,9 x 16	F40142-0600816	F40143-0600816
6,0	3,0	70	8,0	6,0	5,9 x 25	F40142-0600825	F40143-0600825
6,0	3,0	70	8,0	6,0	5,9 x 35	F40142-0600835	F40143-0600835
6,0	3,0	80	8,0	6,0	5,9 x 45	F40142-0600845	F40143-0600845
8,0	4,0	70	10,0	8,0	7,8 x 25	F40142-0801025	F40143-0801025
8,0	4,0	80	10,0	8,0	7,8 x 40	F40142-0801040	F40143-0801040
8,0	4,0	100	10,0	8,0	7,8 x 60	F40142-0801060	F40143-0801060
10,0	5,0	75	12,0	10,0	9,8 x 30	F40142-1001230	F40143-1001230
10,0	5,0	100	12,0	10,0	9,8 x 60	F40142-1001260	F40143-1001260
10,0	5,0	120	12,0	10,0	9,8 x 80	F40142-1001280	F40143-1001280
12,0	6,0	90	14,0	12,0	11,8 x 45	F40142-1201445	F40143-1201445
12,0	6,0	135	14,0	12,0	11,8 x 90	F40142-1201490	F40143-1201490

VHM Torus Hochleistungs-Schaftfräser bis 60 HRC – lang


Solid carbide torus high performance end mill up to 60 HRC – long




Z=4




45° R



DIN 6535
HA



R



nACo

HRC bis 60

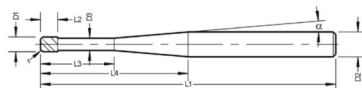
Hartbearbeitung
hard machining








D1.1 / D1.2 h9	r	L1	L2	D2 h6	CODE
6,0 / 5,8	1,5	80	12,0	6,0	F40144-06/5,8
8,0 / 7,8	2,0	100	16,0	8,0	F40144-08/7,8
10,0 / 9,8	2,0	100	20,0	10,0	F40144-10/9,8
12,0 / 11,8	2,0	120	25,0	12,0	F40144-12/11,8



VHM Torusfräser – kurz, lang, extra lang, von 48 bis 54 HRC

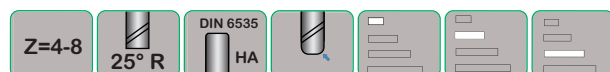
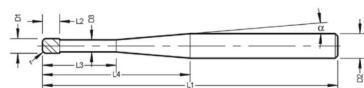
Solid carbide torus cutter – short, long, extra long, from 48 to 54 HRC



								
HRC 48-54	Hartbearbeitung hard machining					nACo	nACRo	
D1 h9	r	L1	L2	D2 h6	D3 x L3 / a	CODE	CODE	
2,00	0,15	45	3,0	4,0	1,9 x 6 / 15°	F40145-02003006	F40146-02003006	
2,00	0,15	45	3,0	4,0	1,9 x 10 / 15°	F40145-02003010	F40146-02003010	
2,00	0,10	55	3,0	4,0	1,9 x 15 / 15°	F40145-02003015	F40146-02003015	
2,00	0,10	55	3,0	4,0	1,9 x 20 / 15°	F40145-02003020	F40146-02003020	
3,00	0,20	45	4,5	6,0	2,9 x 6 / 20°	F40145-03004506	F40146-03004506	
3,00	0,20	54	4,5	6,0	2,9 x 12 / 20°	F40145-03005412	F40146-03005412	
3,00	0,15	58	4,5	6,0	2,9 x 18 / 20°	F40145-03005818	F40146-03005818	
3,00	0,15	67	4,5	6,0	2,9 x 24 / 20°	F40145-03006724	F40146-03006724	
4,00	0,30	58	6,0	6,0	3,9 x 8 / 15°	F40145-04005808	F40146-04005808	
4,00	0,30	58	6,0	6,0	3,9 x 16 / 15°	F40145-04005816	F40146-04005816	
4,00	0,30	67	6,0	6,0	3,9 x 24 / 15°	F40145-04006724	F40146-04006724	
4,00	0,20	72	6,0	6,0	3,9 x 36 / 15°	F40145-04007236	F40146-04007236	
6,00	0,40	60	8,0	6,0	5,9 x 16	F40145-06006016	F40146-06006016	
6,00	0,40	70	8,0	6,0	5,9 x 25	F40145-06007025	F40146-06007025	
6,00	0,40	70	8,0	6,0	5,9 x 35	F40145-06007035	F40146-06007035	
6,00	0,25	80	8,0	6,0	5,9 x 45	F40145-06008045	F40146-06008045	
8,00	0,70	70	10,0	8,0	7,8 x 25	F40145-08007025	F40146-08007025	
8,00	0,70	80	10,0	8,0	7,8 x 40	F40145-08008040	F40146-08008040	
8,00	0,50	100	10,0	8,0	7,8 x 60	F40145-08010060	F40146-08010060	
10,00	0,80	75	12,0	10,0	9,8 x 30	F40145-10007530	F40146-10007530	
10,00	0,80	100	12,0	10,0	9,8 x 60	F40145-10010060	F40146-10010060	
10,00	0,50	120	12,0	10,0	9,8 x 80	F40145-10012080	F40146-10012080	
12,00	1,00	90	14,0	12,0	11,8 x 45	F40145-12009045	F40146-12009045	
12,00	0,50	135	14,0	12,0	11,8 x 90	F40145-12013590	F40146-12013590	

VHM Torusfräser – kurz, lang, extra lang, von 54 bis 60 HRC

Solid carbide torus cutter – short, long, extra long, from 54 to 60 HRC



HRC 54-60
Hartbearbeitung
hard machining

nACo

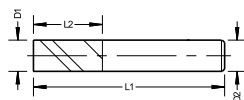
nACRo

D1 h9	z	r	L1	L2	D2 h6	D3 x L3 / a	CODE	CODE
2,00	4,0	0,15	45	3,0	4,0	1,9 x 6 / 15°	F40147-02003006	F40148-02003006
2,00	4,0	0,15	45	3,0	4,0	1,9 x 10 / 15°	F40147-02003010	F40148-02003010
2,00	4,0	0,10	55	3,0	4,0	1,9 x 15 / 15°	F40147-02003015	F40148-02003015
2,00	4,0	0,10	55	3,0	4,0	1,9 x 20 / 15°	F40147-02003020	F40148-02003020
3,00	4,0	0,20	45	4,5	6,0	2,9 x 6 / 20°	F40147-03004506	F40148-03004506
3,00	4,0	0,20	54	4,5	6,0	2,9 x 12 / 20°	F40147-03004512	F40148-03004512
3,00	4,0	0,15	58	4,5	6,0	2,9 x 18 / 20°	F40147-03004518	F40148-03004518
3,00	4,0	0,15	67	4,5	6,0	2,9 x 24 / 20°	F40147-03004524	F40148-03004524
4,00	4,0	0,30	58	6,0	6,0	3,9 x 8 / 15°	F40147-04006008	F40148-04006008
4,00	4,0	0,30	58	6,0	6,0	3,9 x 16 / 15°	F40147-04006016	F40148-04006016
4,00	4,0	0,30	67	6,0	6,0	3,9 x 24 / 15°	F40147-04006024	F40148-04006024
4,00	4,0	0,20	72	6,0	6,0	3,9 x 36 / 15°	F40147-04006036	F40148-04006036
6,00	4,0	0,40	60	8,0	6,0	5,9 x 16	F40147-06008016	F40148-06008016
6,00	4,0	0,40	70	8,0	6,0	5,9 x 25	F40147-06008025	F40148-06008025
6,00	6,0	0,40	70	8,0	6,0	5,9 x 25	F40147-06008025-1	F40148-06008025-1
6,00	4,0	0,40	70	8,0	6,0	5,9 x 35	F40147-06008035	F40148-06008035
6,00	4,0	0,25	80	8,0	6,0	5,9 x 45	F40147-06008045	F40148-06008045
6,00	6,0	0,25	80	10,0	6,0	5,9 x 45	F40147-06010045	F40148-06010045
8,00	4,0	0,70	70	10,0	8,0	7,8 x 25	F40147-08010025	F40148-08010025
8,00	4,0	0,70	80	10,0	8,0	7,8 x 40	F40147-08010040	F40148-08010040
8,00	6,0	0,70	80	10,0	8,0	7,8 x 40	F40147-08010040-1	F40148-08010040-1
8,00	4,0	0,50	100	10,0	8,0	7,8 x 60	F40147-08010060	F40148-08010060
8,00	6,0	0,50	100	12,0	8,0	7,8 x 60	F40147-08012060	F40148-08012060
10,00	4,0	0,80	75	12,0	10,0	9,8 x 30	F40147-10012030	F40148-10012030
10,00	4,0	0,80	100	12,0	10,0	9,8 x 60	F40147-10012060	F40148-10012060
10,00	8,0	0,80	100	12,0	10,0	9,8 x 60	F40147-10012060-1	F40148-10012060-1
10,00	4,0	0,50	120	12,0	10,0	9,8 x 80	F40147-10012080	F40148-10012080
10,00	8,0	0,50	120	12,0	10,0	9,8 x 80	F40147-10012080-1	F40148-10012080-1
12,00	4,0	1,00	90	14,0	12,0	11,8 x 45	F40147-12090045	F40148-12090045
12,00	8,0	1,00	90	14,0	12,0	11,8 x 45	F40147-12090045-1	F40148-12090045-1
12,00	4,0	0,50	135	14,0	12,0	11,8 x 90	F40147-12135090	F40148-12135090
12,00	8,0	0,50	135	14,0	12,0	11,8 x 90	F40147-12135090-1	F40148-12135090-1



VHM Schaftfräser – lang

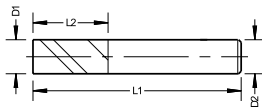
Solid carbide end mill – long



ALU **BLANK**

D1	L1	L2	D2	CODE
3,00	57	8	6,0	F40009-0308
4,00	57	11	6,0	F40009-0411
5,00	57	13	6,0	F40009-0513
6,00	57	13	6,0	F40009-0613
8,00	63	19	8,0	F40009-0819
10,00	72	22	10,0	F40009-1022
12,00	83	22	12,0	F40009-1222
14,00	83	26	14,0	F40009-1426
16,00	92	32	16,0	F40009-1632
18,00	92	32	18,0	F40009-1832
20,00	104	38	20,0	F40009-2038

VHM Schafffräser – kurz, lang
Solid carbide end mill – short, long



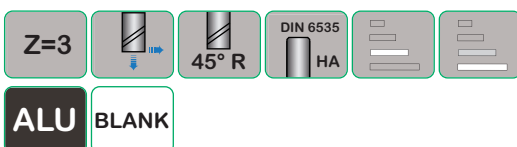
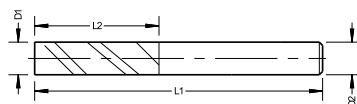
<div><div>Z=2</div><div></div><div>45° R</div><div>DIN 6535 HA</div><div></div></div> <div><div>ALU</div><div>ZrN</div></div> <div></div>				
D1 e8	L1	L2	D2 h6	CODE
4,00	54	8	6,0	F40010-0408
5,00	54	9	6,0	F40010-0509
6,00	54	10	6,0	F40010-0610
8,00	58	12	8,0	F40010-0812
10,00	66	14	10,0	F40010-1014
12,00	73	16	12,0	F40010-1216
14,00	75	18	14,0	F40010-1418
16,00	82	22	16,0	F40010-1622
18,00	84	24	18,0	F40010-1824
20,00	92	26	20,0	F40010-2026

<div><div>Z=2</div><div></div><div>45° R</div><div>DIN 6535 HA</div><div></div></div> <div><div>ALU</div><div>ZrN</div></div> <div></div>				
D1 e8	L1	L2	D2 h6	CODE
4,00	57	11	6,0	F40011-0411
5,00	57	13	6,0	F40011-0513
6,00	57	13	6,0	F40011-0613
8,00	63	19	8,0	F40011-0819
10,00	72	22	10,0	F40011-1022
12,00	83	22	12,0	F40011-1222
14,00	83	26	14,0	F40011-1426
16,00	92	32	16,0	F40011-1632
18,00	92	32	18,0	F40011-1832
20,00	104	38	20,0	F40011-2038



VHM Schaftfräser – lang, extra lang

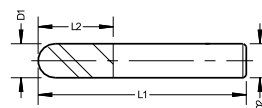
Solid carbide end mill – long, extra long



D1	L1	L2	D2	CODE
3,00	58	8	6,0	F40066-0308
4,00	58	11	6,0	F40066-0411
4,00	63	19	6,0	F40066-0419
5,00	58	13	6,0	F40066-0513
5,00	68	24	6,0	F40066-0524
6,00	58	13	6,0	F40066-0613
6,00	68	24	6,0	F40066-0624
8,00	64	19	8,0	F40066-0819
8,00	88	38	8,0	F40066-0838
10,00	72	22	10,0	F40066-1022
10,00	95	45	10,0	F40066-1045
12,00	83	26	12,0	F40066-1226
12,00	110	53	12,0	F40066-1253
14,00	83	26	14,0	F40066-1426
14,00	110	53	14,0	F40066-1453
16,00	92	32	16,0	F40066-1632
16,00	123	63	16,0	F40066-1663
18,00	92	32	18,0	F40066-1832
18,00	123	63	18,0	F40066-1863
20,00	105	38	20,0	F40066-2038
20,00	141	75	20,0	F40066-2075

VHM Radiusfräser – kurz, extra lang

Solid carbide radius milling cutter – short, extra long



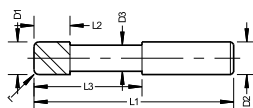
<div> <div>Z=2</div> <div></div> <div>45° R</div> <div>DIN 6535 HA</div> <div>R</div> </div>				
<div> <div>ALU</div> <div>BLANK</div> <div></div> </div>				
D1 h9	L1	L2	D2 h6	CODE
3,00	50	6	3,0 HA	F40149-0306
4,00	54	7	4,0 HA	F40149-0407
5,00	54	8	5,0 HA	F40149-0508
6,00	54	10	6,0 HB	F40149-0610
8,00	59	12	8,0 HB	F40149-0812
10,00	67	13	10,0 HB	F40149-1013
12,00	73	16	12,0 HB	F40149-1216
14,00	75	16	14,0 HB	F40149-1416
16,00	83	20	16,0 HB	F40149-1620
20,00	93	25	20,0 HB	F40149-2025

<div> <div>Z=2</div> <div></div> <div>45° R</div> <div>DIN 6535 HA</div> <div></div> </div>				
<div> <div>ALU</div> <div>BLANK</div> <div></div> </div>				
D1 h9	L1	L2	D2 h6	CODE
3,00	75	10	3,0 HA	F40150-0310
4,00	75	13	4,0 HA	F40150-0413
5,00	75	15	5,0 HA	F40150-0515
6,00	100	16	6,0 HB	F40150-0616
8,00	100	22	8,0 HB	F40150-0822
10,00	100	25	10,0 HB	F40150-1025
12,00	100	26	12,0 HB	F40150-1226
14,00	100	26	14,0 HB	F40150-1426
16,00	150	30	16,0 HB	F40150-1630
20,00	150	40	20,0 HB	F40150-2040



VHM Schaftfräser – lang

Solid carbide end mill – long



ALU

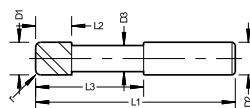
BLANK

ZrN

D1 h9 / r	L1	L2	D2 h6	D3 x L3	CODE	CODE
6,00	57	16	6,0	5,8 x 21	F40151-0616	F40152-0616
6,0/5,0	57	16	6,0	5,8 x 21	F40151-0616/5,0	F40152-0616/5,0
8,00	63	19	8,0	7,8 x 27	F40151-0819	F40152-0819
8,0/0,5	63	19	8,0	7,8 x 27	F40151-0819/0,5	F40152-0819/0,5
10,00	72	22	10,0	9,8 x 32	F40151-1022	F40152-1022
10,0/1,0	72	22	10,0	9,8 x 32	F40151-1022/1,0	F40152-1022/1,0
12,00	83	26	12,0	11,8 x 38	F40151-1226	F40152-1226
12,0/1,0	83	26	12,0	11,8 x 38	F40151-1226/1,0	F40152-1226/1,0
16,00	92	32	16,0	15,7 x 44	F40151-1632	F40152-1632
16,0/1,5	92	32	16,0	15,7 x 44	F40151-1632/1,5	F40152-1632/1,5
20,00	104	38	20,0	19,7 x 54	F40151-2038	F40152-2038
20,0/1,5	104	38	20,0	19,7 x 54	F40151-2038/1,5	F40152-2038/1,5

VHM Torusfräser – lang, extra lang

Solid carbide torus cutter – long, extra long



ALU **BLANK**



D1 h9 / r	r	L1	L2	D2 h6	D 3 x L3	CODE
3,00	0,3	50	4	3	2,7 x 14	F40153-0,3/ 03004014
3,00	1,0	50	4	3	2,7 x 14	F40153-1,0/ 03004014
4,00	0,4	50	5	4	3,7 x 16	F40153-0,4/ 04005016
4,00	1,0	50	5	4	3,7 x 16	F40153-1,0/ 04005016
5,00	0,5	54	6	5	4,6 x 18	F40153-0,5/ 05005418
5,00	1,0	54	6	5	4,6 x 18	F40153-1,0/ 05005418
6,00	0,5	58	7	6	5,5 x 21	F40153-0,5/ 06005821
6,00	1,0	58	7	6	5,5 x 21	F40153-1,0/ 06005821
8,00	0,5	63	9	8	7,4 x 27	F40153-0,5/ 08006327
8,00	1,0	63	9	8	7,4 x 27	F40153-1,0/ 08006327
10,00	0,5	72	11	10	9,2 x 32	F40153-0,5/10007232
10,00	1,0	72	11	10	9,2 x 32	F40153-1,0/10007232
12,00	0,5	83	12	12	11,0 x 38	F40153-0,5/12008338
12,00	1,5	83	12	12	11,0 x 38	F40153-1,5/12008338
16,00	2,0	93	16	16	15,0 x 44	F40153-2,0/16009344



ALU **BLANK**

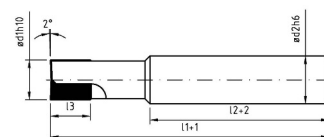


D1 h9 / r	r	L1	L2	D2 h6	D 3 x L3	CODE
3,00	0,3	75	4	3	2,7 x 32	F40154-0,3/ 03007532
3,00	1,0	75	4	3	2,7 x 32	F40154-1,0/ 03007532
4,00	0,4	75	5	4	3,7 x 36	F40154-0,4/ 04007536
4,00	1,0	75	5	4	3,7 x 36	F40154-1,0/04007536
5,00	0,5	75	6	5	4,6 x 40	F40154-0,5/05007540
5,00	1,0	75	6	5	4,6 x 40	F40154-1,0/05007540
6,00	0,5	80	7	6	5,5 x 44	F40154-0,5/06008044
6,00	1,0	80	7	6	5,5 x 44	F40154-1,0/06008044
8,00	0,5	100	9	8	7,4 x 54	F40154-0,5/08010054
8,00	1,0	100	9	8	7,4 x 54	F40154-1,0/08010054
10,00	0,5	100	11	10	9,2 x 60	F40154-0,5/10010060
10,00	1,0	100	11	10	9,2 x 60	F40154-1,0/10010060
12,00	0,5	120	12	12	11,0 x 75	F40154-0,5/12012075
12,00	1,5	120	12	12	11,0 x 75	F40154-1,5/12012075
16,00	2,0	150	16	16	15,0 x 92	F40154-2,0/16015092



PKD Schaftfräser mit Innenkühlung

PCD end mill with internal cooling



<div> <div>PKD PCD</div> <div></div> <div>0,05x45°</div> <div></div> <div>DIN 6535 HA</div> </div>					
<div> <div>ALU <6% Si</div> <div>ALU >6% Si</div> <div>Kupfer cooper</div> <div>Messing brass</div> <div>Graphit graphite</div> <div>GFK CFK</div> </div>					
d1	d2	l1	l2	l3	CODE
6	8	60	36	10	F40198-0606036
6	8	80	36	20	F40198-0608036
8	10	60	40	10	F40198-0806040
8	10	80	40	20	F40198-0808040
10	12	70	45	10	F40198-1007045
10	12	90	45	20	F40198-1009045
12	14	70	45	10	F40198-1207045
12	14	90	45	20	F40198-1209045
14	16	80	48	10	F40198-1408048
14	16	100	48	20	F40198-1410048
16	16	90	48	10	F40198-1609048
16	16	110	48	20	F40198-1611048
18	20	100	50	10	F40198-1810050
18	20	120	50	20	F40198-1812050
20	20	140	50	10	F40198-2014050
20	20	150	50	20	F40198-2015050

<div> <div>PKD PCD</div> <div></div> <div></div> <div>DIN 6535 HA</div> <div>R</div> </div>					
<div> <div>ALU <6% Si</div> <div>ALU >6% Si</div> <div>Kupfer cooper</div> <div>Messing brass</div> <div>Graphit graphite</div> <div>GFK CFK</div> </div>					
d1	d2	l1	l2	l3	CODE
4	6	75	40	2.5	F40199-0407540
5	8	75	40	3	F40199-0507540
6	8	100	60	6	F40199-0610060
8	10	100	60	7	F40199-0810060
12	14	100	60	9	F40199-1210060
16	16	150	100	11	F40199-1615100
20	20	150	90	13	F40199-2015090



Einsatzrichtwerte – VHM Fräser

Estimated values – Solid carbide end mills

Werkstoff	Legierung	Schnitt- geschw. Vc (m/min)	fz						Spantiefe
			Ø 4 – 6	Ø 4 – 8	Ø 8 – 12	Ø 12 – 16	Ø 16 – 20	Ø 20 – 25	in mm
Aluminium	Si < 4%	200 – 400	0,03 – 0,08	0,04 – 0,10	0,06 – 0,15	0,08 – 0,20	0,01 – 0,25	0,12 – 0,30	0,1 - 5,0
	Si < 8%	150 – 3500	0,03 – 0,08	0,04 – 0,10	0,06 – 0,15	0,08 – 0,20	0,01 – 0,25	0,12 – 0,30	0,1 - 5,0
	Si < 12%	130 – 3000	0,03 – 0,08	0,04 – 0,10	0,06 – 0,15	0,08 – 0,20	0,01 – 0,25	0,12 – 0,30	0,1 - 5,0
	Si > 12%	100 – 2500	0,02 – 0,06	0,03 – 0,08	0,04 – 0,10	0,05 – 0,12	0,06 – 0,14	0,08 – 0,16	0,1 - 3,0
Magnesium		200 – 4000	0,03 – 0,08	0,04 – 0,10	0,05 – 0,12	0,08 – 0,18	0,10 – 0,20	0,15 – 0,25	0,1 - 4,0
NE-Metalle	Messing	200 – 2000	0,03 – 0,10	0,04 – 0,12	0,05 – 0,15	0,08 – 0,20	0,10 – 0,25	0,15 – 0,30	0,1 - 4,0
	Kupfer	200 – 2000	0,03 – 0,10	0,04 – 0,12	0,05 – 0,15	0,08 – 0,20	0,10 – 0,25	0,15 – 0,20	0,1 - 4,0
	Bronze	200 – 2000	0,03 – 0,10	0,04 – 0,12	0,05 – 0,15	0,08 – 0,20	0,10 – 0,25	0,15 – 0,30	0,1 - 4,0
Graphite		60 – 1500	0,08 – 0,10	0,10 – 0,12	0,12 – 0,15	0,13 – 0,16	0,14 – 0,18	0,15 – 0,20	0,1 - 3,0
CFK, GFK		100 – 3000	0,08 – 0,16	0,10 – 0,20	0,12 – 0,24	0,13 – 0,16	0,14 – 0,18	0,15 – 0,20	0,1 - 5,0





Einsatzrichtwerte – VHM Fräser Estimated values – End mills solid carbide


F40202; F40204; F40205																		
				K30F-DCF TiCN			K30F-DCF TiAlN			Empfohlener Vorschub pro Zahn (Fz=mm/Zahn) für Wälzfräser (A). Für Nutenfräser (B), Fz um 20% reduziert.								
<div>A</div> <div>B</div>				Schnittge- schwindigkeit Vc m/min			Schnittge- schwindigkeit Vc m/min				D1							
ISO	ap	ae	ap	Min.		Max.	Min.		Max.	mm	2,0	3,0	4,0	5,0	6,0	8,0	10,0	12,0
P1	0,5 x D	0,1 x D	0,25 x D	120	–	160	150	–	200	Fz	0.0138	0.021	0.0284	0.036	0.0438	0.06	0.072	0.0828
P2	0,5 x D	0,1 x D	0,25 x D	112	–	152	140	–	190	Fz	0.0138	0.021	0.028	0.036	0.044	0.06	0.072	0.083
P3	0,5 x D	0,1 x D	0,25 x D	96	–	128	120	–	160	Fz	0.0113	0.017	0.023	0,030	0.036	0,050	0,061	0,070
P4	0,5 x D	0,1 x D	0,25 x D	72	–	120	90	–	150	Fz	0.01048	0.016	0.021	0.027	0.033	0.045	0.054	0,062
M1	0,5 x D	0,1 x D	0,25 x D	72	–	92	90	–	115	Fz	0.0113	0.017	0.023	0,030	0.036	0,050	0,061	0,070
M2	0,5 x D	0,1 x D	0,25 x D	48	–	64	60	–	80	Fz	0.0094	0.014	0.019	0.024	0.029	0,040	0,048	0,056
K1	0,5 x D	0,1 x D	0,25 x D	96	–	120	120	–	150	Fz	0.0138	0.021	0.028	0.036	0.044	0,060	0,072	0,083
K2	0,5 x D	0,1 x D	0,25 x D	88	–	104	110	–	130	Fz	0.0113	0.017	0.023	0,030	0.036	0.05	0,061	0,070
N1	0,5 x D	0,1 x D	0,25 x D	400	–	1600		–		Fz	0.02	0,030	0,040	0,050	0,060	0,080	0,100	0,120
N2	0,5 x D	0,1 x D	0,25 x D	400	–	1200		–		Fz	0.016	0.024	0.032	0,040	0.048	0.064	0,080	0,096
N5	0,5 x D	0,1 x D	0,25 x D	200	–	600	250	–	750	Fz	0.018	0.027	0.036	0,045	0.054	0,072	0,090	0,108

F40206; F40207													
				K30F-DCHP AlTiN		Empfohlener Vorschub pro Zahn (Fz=mm/Zahn) für Wälzfräser (A). Für Nutenfräser (B), Fz um 20% reduziert.							
<div> <div>A</div> <div>B</div> </div>				Schnittge- schwindigkeit Vc m/min		D1							
ISO	ap	ae	ap	Min.	Max.	mm	4,0	6,0	8,0	10,0	12,0		
P1	1,5 x D	0,5 x D	1 x D	180	–	220	Fz	0,030	0,050	0,060	0,070	0,072	
P2	1,5 x D	0,5 x D	1 x D	160	–	200	Fz	0,030	0,050	0,060	0,070	0,072	
P3	1,5 x D	0,5 x D	1 x D	160	–	180	Fz	0,025	0,040	0,050	0,060	0,070	
P4	1,5 x D	0,5 x D	1 x D	140	–	160	Fz	0,023	0,036	0,045	0,054	0,063	
M1	1,5 x D	0,5 x D	1 x D	90	–	115	Fz	0,025	0,040	0,050	0,060	0,065	
M2	1,5 x D	0,5 x D	1 x D	60	–	80	Fz	0,020	0,030	0,040	0,050	0,060	
K1	1,5 x D	0,5 x D	1 x D	120	–	150	Fz	0,030	0,050	0,060	0,070	0,080	
K2	1,5 x D	0,5 x D	1 x D	110	–	130	Fz	0,025	0,040	0,050	0,060	0,070	
K3	1,5 x D	0,5 x D	1 x D	100	–	130	Fz	0,020	0,030	0,040	0,050	0,060	

Einsatzrichtwerte – VHM Fräser

Estimated values – End mills solid carbide

F40208; F40209															
				K30F-DCHP AlTiN		Empfohlener Vorschub pro Zahn (Fz=mm/Zahn) für Wälzfräser (A). Für Nutenfräser (B), Fz um 20% reduziert.									
<div>A</div> <div>B</div>				Schnittge- schwindigkeit Vc m/min			D1								
ISO	ap	ap	ae	Min.	Max.	mm	2,0	3,0	4,0	5,0	6,0	8,0	10,0	12,0	
P1	1 x D	0,1 x D	0,5 x D	150	–	200	Fz	0,014	0,021	0,028	0,036	0,044	0,060	0,072	0,083
P2	1 x D	0,1 x D	0,5 x D	140	–	190	Fz	0,014	0,021	0,028	0,036	0,044	0,060	0,072	0,083
P3	1 x D	0,1 x D	0,5 x D	120	–	160	Fz	0,011	0,017	0,023	0,030	0,036	0,050	0,061	0,070
P4	1 x D	0,1 x D	0,5 x D	90	–	150	Fz	0,010	0,016	0,021	0,027	0,033	0,045	0,054	0,062
M1	1 x D	0,1 x D	0,5 x D	90	–	115	Fz	0,011	0,017	0,023	0,030	0,036	0,050	0,061	0,070
M2	1 x D	0,1 x D	0,5 x D	60	–	80	Fz	0,009	0,014	0,019	0,024	0,029	0,040	0,048	0,056
K1	1 x D	0,1 x D	0,5 x D	120	–	150	Fz	0,014	0,021	0,028	0,036	0,044	0,060	0,072	0,083
K2	1 x D	0,1 x D	0,5 x D	110	–	130	Fz	0,011	0,017	0,023	0,030	0,036	0,050	0,061	0,070
N5	1 x D	0,1 x D	0,5 x D	250	–	750	Fz	0,018	0,027	0,036	0,045	0,054	0,072	0,090	0,108

F40210; F40211															
			K30F-DCHP AlTiN			Empfohlener Vorschub pro Zahn (Fz=mm/Zahn) für Wälzfräser (A). Für Nutenfräser (B), Fz um 20% reduziert.									
<div>A</div>			Schnittge- schwindigkeit Vc m/min				D1								
ISO	ap	ae	Min.		Max.	mm	2,0	3,0	4,0	5,0	6,0	8,0	10,0	12,0	
P1	0,7 x D	0,25 x D	150	–	200	Fz	0,014	0,021	0,028	0,036	0,044	0,060	0,072	0,083	
P2	0,7 x D	0,25 x D	140	–	190	Fz	0,014	0,021	0,028	0,036	0,044	0,060	0,072	0,083	
P3	0,7 x D	0,25 x D	120	–	160	Fz	0,011	0,017	0,023	0,030	0,036	0,050	0,061	0,070	
P4	0,7 x D	0,25 x D	90	–	150	Fz	0,010	0,016	0,021	0,027	0,033	0,045	0,054	0,062	
M1	0,7 x D	0,25 x D	90	–	115	Fz	0,011	0,017	0,023	0,030	0,036	0,050	0,061	0,070	
M2	0,7 x D	0,25 x D	60	–	80	Fz	0,009	0,014	0,019	0,024	0,029	0,040	0,048	0,056	
K1	0,7 x D	0,25 x D	120	–	150	Fz	0,014	0,021	0,028	0,036	0,044	0,060	0,072	0,083	
K2	0,7 x D	0,25 x D	110	–	130	Fz	0,011	0,017	0,023	0,030	0,036	0,050	0,061	0,070	
N5	0,7 x D	0,25 x D	250	–	750	Fz	0,018	0,027	0,036	0,045	0,054	0,072	0,090	0,108	

